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MENTAL DIFFERENCES IN CERTAIN IMMIGRANT GROUPS

Psychological Tests of South Europeans in Typical California Schools with Bearing on the Educational Policy and on the Problems of Racial Contacts in This Country

BY
KIMBALL YOUNG
UNIVERSITY OF OREGON

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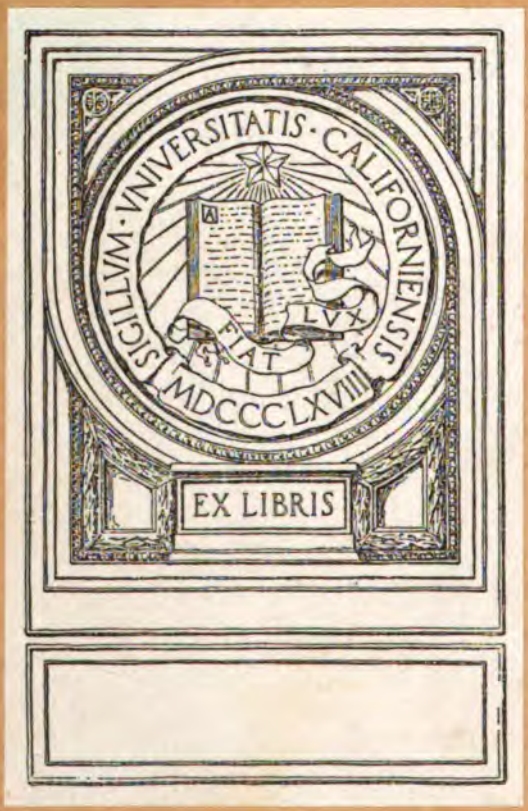

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Not least of all the writer is deeply indebted to Magdalene Anderson Young for her great assistance in the preparation of the thesis and her constant encouragement throughout.

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MENTAL DIFFERENCES IN CERTAIN IMMIGRANT GROUPS

CHAPTER I. PLAN AND PURPOSE OF THIS STUDY

The so-called "New Immigration" which has deluged this country in the past thirty or forty years has resulted in many problems—social, economic, racial and educational. Only lately has serious attention been paid to the last two: in reference to the first the consequences of racial mixture of the older and newer stocks, and in regard to the second, the problem of providing the children of foreign stock and adult immigrants with an education commensurate with modern needs and along the lines laid down in our national culture. The educational difficulties have been reflected in great retardation and in great burden of teaching the foreign children the content of our curricula.

The incentive to this study grew out of an attempt to discover if possible some of the causes of the difficulty in the education of children of South European ancestry in our public schools and further to see if a study of these children of immigrants might not throw some light on the larger question of adult immigration. The purposes of this research are: (1) To investigate by psychological tests and other measures the mental capacity of the South Italian, Portuguese and Spanish-Mexican children in certain public schools, to discover whether their inability to master the traditional American education is due: (a) to their alleged language handicap, or (b) to the lack of native mental endowment (as compared to that of "American" children of North European ancestry) which prevents their acquisition of the content of our curricula. (2) From the results of the study of the school population to note the possible implication of the findings for the larger problem of immigration and the future race mixture in this country.[1]

The results will be treated in a comparative way in order to

[1] Race will be used in this monograph in the semi-popular sense. Cf. Reuter (89) and Retzius (88). Technically in speaking of Europeans we should employ the term "sub-race." "Race" as used here has a common sanction in much sociological and psychological writing. The term "American" will be used to refer to the children of North European ancestry. "Latin" will be used when speaking of the South Italians, Portuguese and Spanish-Mexicans as a group. "Non-Latin" will occasionally be used to designate the children of North European background in contrast to the South Europeans and to avoid stereotyped expression.

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bring out the differences in the native ability and performance of the various groups.

Variation in given traits in a group of individuals has long been recognized in biology. Variability in human height, weight, cephalic index and other strictly physical features is readily admitted. More recently has arisen the idea that in men and women mental traits vary considerably around an "average" and that further the dispersion in mental traits as well as the averages differ in different groups, classes and possibly races. The prejudices against measuring the "mind" are disappearing. It seems to the writer that mental measurement has come to stay and that the application of mental tests is apt to be increased rather than lessened. Certainly no one in the field of testing is ignorant of the long way yet to be covered before the desirable accuracy is obtained. The methods of measuring general intelligence of groups have proved their practical worth through their use in schools, in the recent draft army, in industry, in mental pathology and elsewhere.

The writer accepts, with reservations as to perfection and complete applicability, however, the use of tests of general intelligence as valid for studying the native mental endowment of a school population. It must, of course, be borne in mind that the specific groups which were tested in this study are from one section of the country only. This study is not one of a complete racial group. The particular sample is typical of like groups in other parts of the United States so far as may be determined.

Further, at the outset, the writer accepts as valid two concepts of modern biology and psychology: (1) that of general intelligence; (2) that mental traits are in very considerable measure transmitted by the mechanisms of heredity, and hence exist *relatively* independent of the effects of environment. It it not the purpose at this point to go extensively into the theory of general intelligence or to review the literature on mental inheritance and discuss the problem of heredity versus environment. Nevertheless, for perspective, brief mention will be made in the following paragraphs of these two assumptions.

A. The Nature of General Intelligence.[1]

There exists in the human organism a general inherent capacity or potentiality for adjustment to the environment. Ultimately

[1] Cf. for general treatises Binet and Simon (8), Terman (110, 111, 113), Goddard (45, 46), also the Symposium on Intelligence (108), Henmon (50), Kohs (61), Doll (32), Stockton (102), Mitchell and Ruger (74).

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successful life will be in terms of adequate or inadequate possession of such potentiality. This potentiality is not an instinct, but may be thought of as a sum total of more or less non-specific possibilities for the development of behavior patterns. The actual development of these behavior patterns, however, depends on the type of contacts the individual makes with his environment as he grows up. Although the specific content and meaning in human minds varies, the kind of adjustment "crises" met by any person or group of persons is much the same, and, by and large, the organization of the human mind may be considered fairly common everywhere. Yet in terms of advancement, that is to say, increasingly efficient adjustment, comprising the rise of the arts and sciences making for survival, the groups containing many persons of better than group-average capacity for what might be called projection of behavior into future situations are bound to get ahead, other things being equal, as compared to a group comprising but few individuals of better than average ability. By projection of behavior is implied such factors as: free imagery, comprehension, wider meanings, analyzing and synthetizing ability, symbolic thinking, foresight, interpretation. A combination of higher than average ability and wide variability in one group than in a second would give the former decided advantage over the latter, provided the cultural opportunities of both groups were similar.

The rapid spread of cultural advantages through education and civilization generally is making it possible for the various racial groups to possess somewhat identical social heredity. Progress lies with those groups who have the stronger potential power for using and enhancing this. As Terman puts it (112, p. 128):

> It cannot be disputed, however, that in the long run it is the races which excel in abstract thinking that eat while others starve, survive epidemics, master new continents, conquer time and space, and substitute religion for magic, science for taboos and justice for revenge. . . . Any given society is ruled, led, or at least molded by the five or ten per cent of its members whose behavior is governed by ideas.

While the formal definitions of general intelligence have varied among themselves, the disagreements have usually been purely on emphasis rather than on essentials. Thorndike (122) has held for a mutliple or non-focal notion of intelligence while others have held to a unifocal or common factor belief. One feature of Thorndike's point of view has bearing upon this study. He has maintained that there are at least two types of ability: one which is largely mechanical in its bent, the other ideational. Stockton (102)

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has attacked this problem of two types of intelligence and found that there does seem to be two levels of behavior; one he terms *perceptual,* the second, *conceptual.* He shows from experimental results that those pupils who perform best on the "conceptual" level tend to do poorly on the "perceptual" simply because they are handicapped in dealing with the concrete tasks of the latter, in view of their more highly integrated imagery, symbolic images, wealth of associative processes,—in short more elaborate "central processes."

According to Stockton the notion of "kinds of intelligence" must be reduced rather to the more satisfactory concept of different degrees in the organization of intelligence. We want to know how effective the mental processes are in leading to successful adjustment. These processes may be either concrete, perceptual organization or a higher integration of mind in terms of "symbolic thinking," use of language, analysis and synthesis. In brief it is just those that have capacity to deal with problems in terms of symbols and meanings, of comprehension and interpretation, that have on the whole most successfully used the products of civilization and have gone on to enhance them. In modern complex society the better organized, more efficient degree of intelligence is especially needed.

B. Inheritance of Mental Traits.

The hereditary aspect of this problem is not so certain. The bearing of the inheritance of mental traits on the second problem outlined above is obvious.[1] If the intelligence of the incoming immigrant should prove below the average of the native white American, does it indicate anything concerning the distribution of intelligence in the next generation of the particular immigrant stock? If on the other hand, intelligence is the resultant of the forces of environment acting on a practically common heredity everywhere in society, may we not anticipate a change in the average intelligence of the second generation from the immigrant, and in view of good surroundings—education, uplift, Americanization, and industrial "good times"—an increasing shifting in the variability, if not in the central tendency of intelligence toward higher ability? Now it must be admitted at once that our knowl-

[1] If there is nothing to mental inheritance, then any differences in mentality revealed by tests of foreign children would apply only to first and possibly second generation of pupils in the schools. If mental heredity be a fact, then our results may have profound significance for our national well-being—educational, political, and cultural.

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edge of the inheritance of mental traits is not so definite as we desire. However, careful studies of the matter are pushing us to the conclusion not only that there are levels of general intelligence in the population but that these are fairly constant, at least much more constant from generation to generation than we have been inclined to believe. It is true that the elimination of all the factors of environment, especially the effects of unfavorable circumstances in the formative years of life which may bring complexes, and habits that later opportunities can not eliminate, should make us cautious of too wide assumptions on the question. Still the evidence at hand on the effect of heredity independent of environment can not be ignored.

The pioneer work of Galton (42) and DeCandolle (28) on hereditary genius led the way to the later investigations. Since Galton, the outstanding contributions have come from Pearson[4] (78), Ellis (37), Davenport (26), Woods (136), Goddard (45), Starch (101), Thorndike (119) are best known. A phase of this matter of the stability of intelligence under varying environmental opportunities is of interest. Boas arguing for the slight effect which heredity in mental traits plays in racial differences as contrasted to the influence of environment writes (9, p. 103):

> It is one of the fundamental laws of psychology that the repetition of mental processes increases the facility with which these processes are performed.

If Boas is arguing, as he apparently is, that practice will tend to wipe out differences in performance of a set of individuals of same age, he is mistaken. That is, mere educational and cultural opportunities will not eliminate those differences in individuals that appear to be innate. Starch cites some research into the relation of learning in school subjects to intelligence, showing that the relative differences in persons is enhanced, not diminished, by practice (101, p. 91):

> All experimental results point in the direction that practice does not equalize abilities. . . . The gifted individuals profit more, both relatively and absolutely, than the less gifted. This experimental fact is one of the most profound bits of evidence regarding the whole problem of heredity and environment.

Conclusive results of a study by Ruch (94) on this very problem show that on material demanding the "higher thought processes" practice reveals increasing wider differences in the responses of three groups of individuals: poor, medium, and

[4] Cf: Yule (145) for criticism of certain findings of Pearson.

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superior in intelligence. That is, the advantage is all to the favor of the latter two groups and not the first, and moreover the last group does not only absolutely but relatively better than the second even. It would seem then that Boas' statement must be modified to take into account the effect of levels of intelligence upon the increase in the "facility" of handling problems demanding intelligence.

Whatever be the individual nature of the carriers of this potentiality in human beings, we must accept the facts that intellectual traits are to considerable if not complete degree transmissible by and subsumable to the laws of heredity. One need not nor can not conclude with certain writers that the matter is all heredity and nothing else.[8] Neither are mental differences in groups and races due alone to adventitious effects of environment. The evidence is strong that the mixture of family strains of weak mentality affects the capacities in the forthcoming generations. The same laws must hold for the crossing of family strains of various racial or sub-racial strains. We may justly then at the conclusion of this investigation at least raise the implication of the possible effect of racial mixture in this country between various immigrant stocks as we *actually find them* in this country. This is truly a supplementary feature to the monograph, but its consequences are large and the writer believes he is justified in raising the issue.

In brief, then, there are two assumptions fundamental to our purpose: the first regarding general intelligence bears upon the experimental method and the interpretation of the results for educational ends; the second bears by implication, at least, upon the interpretation of the results for the wider problems of immigration, racial mixture and future cultural progress.

[8] Cf: Sumner (105), who held the thesis that there were great individual differences in people and attempted to show the influence of free land and economic opportunity on the beliefs in man's innate "equality." Ward (127) held the view that environment and opportunity account for most of the differences in mentality of groups. Cf: also Davies (27), whose book attempts to show that mental superiority is dependent on environment. His arguments might go to prove quite the contrary. One can scarcely hold with Galton that all genius "will out." This is to ignore the influence of cultural level and "run of attention." Cf: *infra*, Chap. V.

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CHAPTER II. METHODS AND MATERIALS

A. Selection of the Sample.

Since the problem before us is one of general mental ability in racial groups, a selection of children by age rather than grade was made. There is no need of defending at length this decision, which though in little use in educational surveys, is based upon good statistical principle. To take an age group and test all the children in a school system of this age furnishes a better sample from which to work in comparing groups than any method of selection by grade. The age to choose was a problem, but after considering the availability of sample, the withdrawal from school of children after 13 or 14 years, it was decided to select all children who had passed their twelfth birthday and were not yet thirteen. Moreover this group did not include many who had entered adolescence and hence the difficulties of possible emotional instability were removed. Then, too, the practical cessation of immigration from Europe in 1914 meant that there was a considerable interim of no-immigration into the South European neighborhoods, and hence the possible likelihood of getting twelve-year-olds who had but recently arrived in the country and knew no English did not arise. Moreover, as it turned out, practically all the cases tested were born in this country. Of those born abroad, at least so far as the South Italians are concerned, all but two or three had been in the United States over five years. These few had been here at least three years. The individual records of these cases shows that they were not particularly handicapped by the language difficulty.

TABLE I. BIRTHPLACE OF GROUPS[6] (Percentages born in countries indicated)

Race Group	U. S.	Italy	Portugal	Spain	Mexico	Hawaii
American (S. J.)	99.5					
Italian (S. J.)	84.5	14.8				
Portuguese	88.5		3.8			7.7
Spanish-Mexican	73.5			22.6	1.9	
Italian (Miscellaneous)	86.0	14.0				
American (Miscellaneous)	97.8					

(N. B. The balance of percentages not indicated were born elsewhere.)

[6] Certainly to be born in this country may not mean contact with American life; yet the school attendance, contacts in play and work often help the child born in this country, of foreign parentage, over the handicap of home environment where the parents continue to speak the native tongue.

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The communities studied were: San Jose, Santa Clara, South San Francisco, Sunnyvale, Half Moon and Milpitas. All these cities and towns had a relatively high percentage of population of South European ancestry, while the bulk of the remaining population was of older standing in the communities and of Northern European background: English, German, Scandinavian almost completely. The following percentages of population of this latter background compared with that of the various South European are typical: For San Jose, Northern European ancestry ("Americans"), 56.5 per cent; South Italian, 35.3 per cent; Portuguese, 2.1 per cent and Spanish-Mexican, 5.9. Corresponding figures for Santa Clara are: 37.4; 5.8; 39.0; 20.7. For South San Francisco: 27.0; 57.1; 14.2; 1.0.

B. Selection of Psychological Tests.

Since it was the purpose in this study to handle rather large numbers of cases, and to select tests which would answer the question of alleged language handicap, the Binet test was out of the question. We chose two group tests, one decidedly verbal in its make-up, the other purely performance and not dependent on knowledge of English for its successful manipulation. The first, the army alpha, differentiates mentality down to ten years mental age or slightly lower perhaps. It would outreach the mentality of any superior child found in the group. The correlation of +.99 of alpha with Binet in the army testing proves the satisfactoriness of the test for diagnosis of groups (73, p. 99). The other test, beta, was the best performance test available. The procedure was modified slightly over that given in the army to permit instructions to be given in simple language rather than by pantomime as was done in the former case. The method of presenting typical forms and demonstrating was continued. Then came simple verbal expression, for example: "Look at your papers, Test Six. Draw in the missing parts as I did on the board."

C. Outside Criteria.

To check the statistical results from the tests, data on grade location, teachers' estimates of school work and of intelligence were collected. Also the occupations of the parents, for a possible cue to the influence of economic level on the standing in the tests. The scale for making these various estimates will be noted when the results of the data are presented.

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D. The Administration and Scoring of the Tests.

The tests were given by the writer himself. All precautions possible to make for uniformity of conditions were taken. Ventilation, lighting, presentation of test material itself—these and allied factors were carefully guarded. Alpha was usually given first, followed by beta within the same week or at the outside two weeks later. The children were selected by means of teachers' registers, as well as by enquiring of children themselves the facts on their ages. In doubtful cases, school nurses and principals were called in to determine from parents the child's age. Out of nearly 1000 children tested, only 20 children were eliminated for ages incorrectly given. If a child missed one of the two tests, attempts were made as soon as he returned to school to test him. The children manifested keen interest in the whole procedure. Discipline and esprit de corps were excellent. The groups were usually of fifty or less. Only in two instances did the writer attempt, with the help of teachers and fellow graduate students, to give the test to as many as 100 children at once. There is no evidence whatever that the administration of the tests by a stranger had any detrimental effects. The writer became a very familiar person about the school buildings and grounds during the course of an entire school year and the children were always courteous and interested in what he was doing.

The tests were scored by trained assistants and by the writer himself. Later the computations in individual tests were checked on adding machine, and a large random sample of the tests themselves were re-scored. Errors were slight if any.

E. The Materials.

The following tables present the raw data of the study grouped into convenient units.[7] "S. J. American" refers to the children of North European ancestry from San Jose, California; "S. J. Italian" refers to the South Italians from the San Jose schools; "Miscellaneous American" refers to the children of Northern European ancestry from the other localities outside of San Jose; "Miscellaneous Italian" in similar fashion comprises the South Italians from communities other than San Jose. For Portuguese and Spanish-Mexican children they came at random from all the localities.[8]

[7] Except for the distribution in grades which is given in percentages in the next chapter.

[8] The San Jose American and San Jose Italian children were kept separate for comparative purposes. And the Miscellaneous groups furnished control groups for checking on results from San Jose. Misc. will be used to abbreviate Miscellaneous. A will be used in some instances as an abbreviation of alpha, and B for beta. Statistical abbreviations follow common practice.

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TABLE II. DISTRIBUTION OF TEACHERS' ESTIMATES, PARENTS' OCCUPATIONS, S. J. AMERICAN CHILDREN

—1—		—2—		—3—		—4—	
M of Two Est. Intel.	No. Pupils	M of Two Est. Schwk.	No. Pupils	Taussig Occp. Sc.	No. Pupils	Barr Occp. Sc.	No. Pupils
1	3	1	9	5	27	12	10
1.5	10	1.5	6	4	100	11	14
2	35	2	23	3	120	10	23
2.5	27	2.5	16	2	51	9	51
3	45	3	39	1	18	8	43
3.5	42	3.5	45	Total	316	7	62
4	80	4	76			6	30
4.5	30	4.5	38			5	46
5	27	5	35			4	31
5.5	9	5.5	10			3	1
6	5	6	15				
6.5	2	6.5	2				
7	1	7	2				
Total	316	Total	316			Total	316

TABLE III. ALPHA, BETA, AND COMBINED ALPHA AND BETA TEST DISTRIBUTIONS, S. J. AMERICAN CHILDREN

A		B		Comb. A. & B.	
Scores	Total	Scores	Total	Scores	Total
150-159	1	95-99.5	5	220-239.5	1
140-149		90-94.5	2	200-219.5	6
130-139		85-89.9	13	180-199.5	13
120-129	2	80-84.5	31	160-179.5	46
110-119	10	75-79.5	34	140-159.5	56
100-109	16	70-74.5	58	120-139.5	58
90- 99	21	65-69.5	60	100-119.5	56
80- 89	34	60-64.5	36	80- 99.5	44
70- 79	30	55-59.5	27	60- 79.5	19
60- 69	42	50-54.5	18	40- 59.5	6
50- 59	34	45-49.5	15		
40- 49	49	40-44.5	4		
30- 39	33	35-39.5	4		
20- 29	25				
10- 19	13				
0- 9	4				
Total	314	Total	307	Total	305

TABLE IV. DISTRIBUTION OF TEACHERS' ESTIMATES, PARENTS' OCCUPATIONS, S. J. ITALIAN CHILDREN

—1—		—2—		—3—		—4—	
M of Two Est. Intel.	No. Pupils	M of Two Est. Schwk.	No. Pupils	Taussig Occp. Sc.	No. Pupils	Barr Occp. Sc.	No. Pupils
1.0		1.0		5		10	7
1.5	1	1.5	3	4	25	9	13
2.0	5	2.0	3	3	32	8	4
2.5	7	2.5	2	2	37	7	9
3.0	10	3.0	20	1	102	6	15
3.5	21	3.5	16	Total	196	5	33
4.0	43	4.0	51			4	74
4.5	22	4.5	25			3	35
5.0	40	5.0	36			2	1
5.5	18	5.5	19				
6.0	16	6.0	6				
6.5	2	6.5	3				
7.0	6	7.0	7				
Total	196	Total	196			Total	196

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TABLE V. ALPHA, BETA, AND COMBINED ALPHA AND BETA TEST DISTRIBUTIONS, S. J. ITALIAN CHILDREN

A		B		Comb. A. & B.	
Scores	Total	Scores	Total	Scores	Total
90-94	2	95-99.5	1	160-179.5	4
85-89		90-94.5		140-159.5	6
80-84	2	85-89.5	1	120-139.5	12
75-79	1	80-84.5	7	100-119.5	35
70-74	4	75-79.5	6	80- 99.5	39
65-69	3	70-74.5	13	60- 79.5	36
60-64	5	65-69.5	24	40- 59.5	35
55-59	2	60-64.5	25	20- 39.5	17
50-54	7	55-59.5	19	0- 19.5	3
45-49	12	50-54.5	25		
40-44	14	45-49.5	23		
35-39	15	40-44.5	10		
30-34	12	35-39.5	15		
25-29	18	30-34.5	6		
20-24	16	25-29.5	8		
15-19	15	20-24.5	5		
10-14	22	15-19.5	2		
5- 9	20	10-14.5	1		
0- 4	21	5- 9.5			
		0- 4.5	1		
Total	191	Total	192	Total	187

TABLE VI. DISTRIBUTION OF TEACHERS' ESTIMATES, PARENTS' OCCUPATIONS, PORTUGUESE CHILDREN

—1—		—2—		—3—		—4—	
M of Two Est. Intel.	No. Pupils	M of Two Est. Schwk.	No. Pupils	Taussig Occp. Sc.	No. Pupils	Barr Occp. Sc.	No. Pupils
1.0		1.0		5		10	14
1.5		1.5		4	21	9	5
2.0	1	2.0	2	3	8	8	
2.5	1	2.5	1	2	15	7	3
3.0	3	3.0	2	1	34	6	3
3.5	6	3.5	4	Total	78	5	15
4.0	12	4.0	20			4	19
4.5	14	4.5	17			3	19
5.0	14	5.0	20				
5.5	13	5.5	5				
6.0	7	6.0	3				
6.5	5	6.5					
7.0	2	7.0	4				
Total	78	Total	78			Total	78

TABLE VII. ALPHA, BETA AND COMBINED ALPHA AND BETA TEST DISTRIBUTIONS, PORTUGUESE CHILDREN

A		B		Comb. A. & B.	
Scores	Total	Scores	Total	Scores	Total
95-99	1	90-94.5	1	180-199.5	1
90-94	1	85-89.5	1	160-179.5	2
85-89	1	80-84.5	1	140-159.5	3
80-84	2	75-79.5	1	120-139.5	5
75-79		70-74.5	5	100-119.5	11
70-74		65-69.5	9	80- 99.5	9
65-69		60-64.5	6	60- 79.5	18
60-64		55-59.5	8	40- 59.5	17
55-59	3	50-54.5	10	20- 39.5	7
50-54	7	45-49.5	10	0- 19.5	1
45-49	1	40-44.5	8		
40-44	2	35-39.5	3		
35-39	6	30-34.5	8		
30-34	4	25-29.5	2		
25-29	7	20-24.5	1		
20-24	7	15-19.5			
15-19	7	10-14.5			
10-14	6	5- 9.5			
5- 9	9	0- 4.5	1		
0- 4	13				
Total	77	Total	75	Total	74

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TABLE VIII. DISTRIBUTION OF TEACHERS' ESTIMATES, PARENTS' OCCUPATIONS, SPANISH-MEXICAN CHILDREN

—1—		—2—		—3—		—4—	
M of Two Est. Intel.	No. Pupils	M of Two Est. Schwk.	No. Pupils	Taussig Occp. Sc.	No. Pupils	Barr Occp. Sc.	No. Pupils
1.0		1.0		5		10	2
1.5	1	1.5		4	4	9	2
2.0		2.0	2	3	12	8	2
2.5	1	2.5	1	2	16	7	4
3.0	2	3.0	3	1	21	6	6
3.5	4	3.5	2	Total	53	5	16
4.0	8	4.0	17			4	13
4.5	15	4.5	6			3	3
5.0	8	5.0	11				
5.5	6	5.5	7				
6.0	3	6.0	2				
6.5	2	6.5	1				
7.0	3	7.0	1				
Total	53	Total	53			Total	53

TABLE IX. APLHA, BETA AND COMBINED ALPHA AND BETA TEST DISTRIBUTIONS, SPANISH-MEXICAN CHILDREN

A		B		Comb. A. & B.	
Scores	Total	Scores	Total	Scores	Total
65-69	2	80-84.5	2	140-159.5	1
60-64	2	75-79.5	1	120-139.5	6
55-59	3	70-74.5	4	100-119.5	4
50-54	1	65-69.5	8	80- 99.5	12
45-49	1	60-64.5	1	60- 79.5	13
40-44	3	55-59.5	8	40- 59.5	10
35-39	3	50-54.5	7	20- 39.5	4
30-34	4	45-49.5	8	0- 19.5	1
25-29	6	40-44.5	4		
20-24	3	35-39.5	5		
15-19	4	30-34.5	1		
10-14	6	25-29.5	1		
5- 9	7	20-24.5	1		
0- 4	6	15-19.5	1		
		10-14.5			
		5- 9.5			
		0- 4.5	1		
Total	51	Total	53	Total	51

TABLE X. DISTRIBUTION OF TEACHERS' ESTIMATES, PARENTS' OCCUPATIONS, MISC. ITALIAN CHILDREN

—1—		—2—		—3—		—4—	
M of Two Est. Intel.	No. Pupils	M of Two Est. Schwk.	No. Pupils	Taussig Occp. Sc.	No. Pupils	Barr Occp. Sc.	No. Pupils
1.0		1.0		5		10	7
1.5	1	1.5	1	4	19	9	9
2.0	1	2.0	1	3	6	8	1
2.5	1	2.5	1	2	12	7	4
3.0	4	3.0	3	1	20	6	1
3.5	4	3.5	9	Total	57	5	21
4.0	7	4.0	10			4	7
4.5	10	4.5	9			3	7
5.0	10	5.0	8				
5.5	10	5.5	6				
6.0	5	6.0	4				
6.5	3	6.5	4				
7.0	1	7.0	1				
Total	57	Total	57			Total	57

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TABLE XI. ALPHA, BETA AND COMBINED ALPHA AND BETA TEST DISTRIBUTIONS, MISC. ITALIAN CHILDREN

A		B		Comb. A. & B.	
Scores	Total	Scores	Total	Scores	Total
100-104	1	80-84.5	1	160-179.5	1
95-99		75-79.5	1	140-159.5	2
90-94	1	70-74.5	5	120-139.5	2
85-89		65-69.5	7	100-119.5	5
80-84		60-64.5	5	80- 99.5	16
75-79		55-59.5	8	60- 79.5	13
70-74	2	50-54.5	11	40- 59.5	11
65-69		45-49.5	2	20- 39.5	4
60-64		40-44.5	7		
55-59	1	35-39.5	2		
50-54		30-34.5	2		
45-49		25-29.5	3		
40-44	3				
35-39	2				
30-34	3				
25-29	5				
20-24	10				
15-19	9				
10-14	6				
5- 9	3				
0- 4	6				
Total	57	Total	54	Total	54

TABLE XII. DISTRIBUTION OF TEACHERS' ESTIMATES, PARENTS' OCCUPATIONS, MISC. AMERICAN CHILDREN

—1—		—2—		—3—		—4—	
M of Two Est. Intel.	No. Pupils	M of Two Est. Schwk.	No. Pupils	Taussig Occp. Sc.	No. Pupils	Barr Occp. Sc.	No. Pupils
1.0		1.0		5	5	12	2
1.5	3	1.5	2	4	22	11	3
2.0	3	2.0	5	3	43	10	11
2.5	4	2.5	3	2	12	9	13
3.0	9	3.0	10	1	8	8	2
3.5	8	3.5	8	Total	90	7	32
4.0	37	4.0	29			6	7
4.5	15	4.5	16			5	14
5.0	4	5.0	11			4	4
5.5	2	5.5	3			3	2
6.0	4	6.0	3				
6.5	1						
Total	90	Total	90			Total	90

TABLE XIII. ALPHA, BETA AND COMBINED ALPHA AND BETA TEST DISTRIBUTIONS, MISC. AMERICAN CHILDREN

A		B		Comb. A. & B.	
Scores	Total	Scores	Total	Scores	Total
100-109	1	95-99.5	2	180-199.5	1
90-99	11	90-94.5	1	160-179.5	13
80-89	6	85-89.5	4	140-159.5	15
70-79	15	80-84.5	4	120-139.5	23
60-69	13	75-79.5	9	100-119.5	14
50-59	12	70-74.5	15	80- 99.5	9
40-49	8	65-69.5	13	60- 79.5	5
30-39	10	60-64.5	14	40- 59.5	2
20-29	4	55-59.5	11	20- 39.5	2
10-19	4	50-54.5	2		
0- 9	4	45-49.5	5		
		40-44.5	3		
		35-39.5			
		30-34.5	2		
		25-29.5			
		20-24.5	1		
Total	88	Total	86	Total	84

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CHAPTER III. TREATMENT OF RESULTS

1. Preliminary Survey*

The original American settlers in the Santa Clara valley were almost entirely of North European ancestry, with the bulk of them specifically English or German in descent. There have been in these communities, however, for long periods a small minority of both French and Spanish. The school problem for this population was similar to that found in typical northern and western American towns and villages of the period after the Civil war. About 1890 there began a considerable incursion of immigration of South European and Mexican sources, and since 1900 this movement has been very large, until now the communities possess a noticeable percentage of foreign-born persons or persons of foreign-born parentage.

San Jose offers throughout this thesis the chief center of material, and will be used here for a brief summary of the pertinent history of the school problem we are attempting to solve. The Italian constitutes the largest group of foreigners in San Jose, and his incoming has been along the periphery of this medium-sized city of 30,000 or so, at those geographical points where the city proper touches the surrounding agricultural districts, with its rich vegetable and fruit products. Here are located not only many of the finest prune ranches and tomato tracts, but also the canneries and other industrial plants that serve to supplement the purely agricultural pursuits of the laboring population. In time the Italians and to less degree the Portuguese and Spanish-Mexicans have encircled San Jose absorbing entire sections until in the districts comprising two-thirds of the city's boundaries are found large and populous neighborhoods occupied almost without exception by the Italian families.

This dislocation of the population of these neighborhoods, which has been so typical in all American cities facing a similar situation, had profound and serious effects upon the public schools. The Italian especially of all the groups we are studying is ambitious for "a stake in the land" and his efforts with those of his children are bent on this purpose. The Portuguese is much less desirous of land ownership and much more mobile, and likewise

* This section is somewhat abbreviated from the longer and more complete history in the original typewritten thesis now in the Stanford Library.

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the Spanish-Mexican groups are transient on the whole compared to the South Italian.

The effects on the school are noticeable in three particulars: (1) school discipline, (2) teaching problem, (3) retardation. All three are closely related to the one outstanding feature: the difference in educability of the child of foreign parentage and the child of North European ancestry. In discipline the problem was one of dealing with temperamental differences in the groups, and in enforcing school attendance. The parents of the Italian, Portuguese and Spanish-Mexican children little realized the American *mores* on the place of education in our life. Their interests being immediately economical, the attendance laws had to be vigorously enforced. In the case of San Jose and Santa Clara, the last five years, at least, has seen a very determined and successful attempt to bring the child of foreign parentage into the school and to keep him there. The long tenure of certain well-qualified principals and teachers has assisted in this matter. The teaching problem became really one of dealing with children of different cultural backgrounds, and in the first few years many of them had difficulty acquiring the use of the English which is the key instrument to the acquisition of the elementary curricula. No attempt was made beyond observational method to rate the teaching efficiency of the school systems studied. So far as San Jose, Santa Clara, Sunnyvale and South San Francisco are concerned the teaching there was average considering the somewhat crowded conditions in the class-rooms and a somewhat ancient rule of pedagogical procedure. The principals in the schools attended by the foreign children were all exceptionally alive to their problem, and rearrangements of sections, rooms for retarded and backward, and such usual makeshifts were in use. In the case of the schools in more rural districts, like Half Moon and Milpitas, the handicaps of the ordinary country school were more apparent; several grades to a teacher, lack of equipment and poor compensation. But even in these cases the work was pretty high calibre, for these communities are in well-regulated parts of the state whose entire school system is in the first rank of our country.

Facts of retardation furnish the most convenient presentation of the educational situation. Certain sample facts were collected on age-grade distributions in San Jose and Santa Clara which throw into relief at once the crux of our problem. The following tables summarize the matter for the entire city of San Jose and

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especially for four schools which serve as samples of the entire system there. Schools A and B are attended largely by children of North-European ancestry, and C and D by Latins. The amount of retardation in the specific race groups was not available. We have followed the Ayres method of computing retardation (3, ch. 4) but in one column have given the figures for retardation in these schools if three years rather than two be "allowed" for normal progress. The differences between the sample "American" schools and the sample "Latin" schools is still quite as marked, when three years is allowed for passing a given grade.

TABLE XIV. RETARDATION IN CERTAIN SCHOOLS IN SAN JOSE, 1919-20

School	No. Pupils	No. Retard.	Per Cent Retard. (Ayres)	Per Cent Retard. (3-yr. Scale)	Per Cent Latins in Schools
Total San Jose	4939	2098	42.4	20.8	40.0
School A	652	177	27.1	9.8	16.1
School B	629	187	29.7	12.1	17.5
School C	770	399	51.8	26.8	81.4
School D	744	464	62.1	38.4	72.4

TABLE XV. COMPARATIVE RETARDATION BY GRADE IN SCHOOLS A, B, C AND D; ALSO PERCENTAGE OF PUPILS IN THE VARIOUS GRADES

1. For Schools A and B Together

Grades	No. Pupils	No. Retard.	Per Cent Retarded	Per Cent in Grades
I	212	29	13.7	16.5
II	150	33	22.0	11.7
III	149	49	32.9	11.7
IV	137	50	36.5	10.7
V	161	59	36.6	12.6
VI	169	62	36.6	13.2
VII	140	34	24.3	10.8
VIII	163	48	29.4	12.7
Total	1281	364		

2. For Schools C and D Together

Grades	No. Pupils	No. Retard.	Per Cent Retarded	Per Cent in Grades
I	335	143	42.7	22.1
II	243	138	56.8	16.1
III	193	118	61.1	12.7
IV	208	134	64.4	13.7
V	145	103	71.0	9.6
VI	168	104	61.9	11.1
VII	126	78	61.9	8.3
VIII	96	45	46.8	6.3
Total	1514	863		

Table XV shows the situation of retardation by grade for the two sample "American" schools and the two "Latin" schools taken each together. In addition is presented the percentage of the total enrollment found in the various grades. For schools A and B the retardation figures for all the grades but the first run from

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22 to slightly above 36 per cent. The largest retardation is found in grades IV, V and VI. In schools C and D together the retardation figures for grades II to VII inclusive is over 50 per cent for each grade and reaches in the fifth the astounding proportions of 71 per cent. The largest figures are shown for grades III, IV, V, VI and VII. In both these schools the duplication of sections for both lower and upper half grades is very much greater than in schools A and B. Not only does retardation clog the school machinery, but the teaching problem is made more difficult. Those who sit two years in the grades are usually those who profit least by the instruction.

Interesting side-light on the problem is shown moreover by scanning the column at the extreme right of the table. For A and B with the exception of the first grade the percentage of pupils of the total enrollment is throughout pretty uniform. Normally if the children were theoretically placed in the grades the percentage for each would lie between 12 and 13. The actual figures from grade II to VIII is from slightly less than 11 to a fraction above 13. For C and D with the one exception of grade VI there is a steady decline in the percentage of pupils from grade I with 22 per cent (over one-fifth of total enrollment) to but a trifle over 6 per cent in the eighth grade. Curiously too, for that grade, the fifth, with the greatest retardation, the percentage of total enrollment is only 9.6 per cent.

The results for these two groups of schools in San Jose are typical not only for San Jose but for the other cities and towns from which the children tested came. In the case of Sunnyvale the school compared more favorably with schools A and B, but in South San Francisco, Milpitas and Half Moon retardation conditions were more serious than in San Jose. Specific retardation reports on these smaller localities are omitted. For Santa Clara, however, certain statistics are available through the work of a former principal there and sample tables from her work are given (85).

Santa Clara has one large public elementary school in size much like school C in San Jose, except that the number of children of North European ancestry is somewhat higher. The economic and social background of the school population is not unlike the similar school population in schools C and D. The following figures are for the upper grades only (the half grades are put together):

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TABLE XVI. RETARDATION AND ACCELERATION IN SANTA CLARA, 1917-18[10]

1. NON-LATINS

Grade	No. in Class	No. Accel.	Amt. Accel.	No. Normal	No. Retard.	Amt. Retard.
IV	32	6	7	17	9	23
V	27	3	6	11	13	39
VI	38	14	18	19	5	10
VII	41	8	11	18	15	37
VIII	38	11	21	16	11	18
Totals	176	42	63	81	53	127
Terms retarded		127				
Terms accelerated		63				
Retardation		64				

2. LATINS

Grade	No. in Class	No. Accel.	Amt. Accel.	No. Normal	No. Retard.	Amt. Retard.
IV	43	3	3	4	36	114
V	42	5	6	4	33	160
VI	20	1	1	5	14	40
VII	15			4	11	25
VIII	4			1	3	4
Total	124	9	10	18	97	343
Terms retarded		343				
Terms accelerated		10				
Retardation		333				

Again the difference between the Latins and the non-Latins is marked. The retardation is progressively greater as one proceeds through the lower grades. The following brief table is culled from Miss Preston's study in attempt to throw light on possible causes of this state of difference between the groups with which the school had to deal.

TABLE XVII. RANGE OF INTELLIGENCE QUOTIENTS OF PUPILS IN CERTAIN GRADES, SANTA CLARA, 1917-18

Race	Ranges of I. Q.'s in Grades				
	IV	V	VI	VII	VIII
Latins	66-108	68- 98	63-104	66-103	71-106
Non-Latins	81-128	61-125	90-154	82-125	75-134

The range of I. Q.'s with which the teachers deal is closely related to the amount of retardation. It is self-apparent that while in both Latin and non-Latin groups the range of intelligence is rather long, that the problem of teaching the American children, in terms of ability, is far easier than with the Latins who in no case rise but a few points above the standard average intelligence which would be expected of children in any given grade.

The following quotation from the study of Miss Preston at Santa Clara typifies the whole matter (85, p. 22):

> Since it is well recognized that no class can make progress faster than the majority comprising it, these figures (some of which were quoted above) show the impossibility of the first, second, third, fourth, and fifth

[10] Computed on basis of school terms of half-year's duration.

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grades, with a majority below normal, making the progress possible in 1905 when the great majority were normal. . . . Letting the superior (pupils) skip a grade helped a month or so at the time, but as the class they went into was still progressing at what was a snail's pace for them, they again tended to sink back into a state of inertia, losing initiative and forming habits of indolence without developing the power of application and executive ability for which there is so strong a demand in the world's work.

It is obvious that we are dealing with certain classes of South Europeans who come to our shores who present a serious problem not only industrially and politically but educationally. The big bulk of these people are of peasant type: patient, persevering, and mediocre. Is their difficulty in our schools, their lack of educability (for that is what it is) one of language handicap alone, one of difference of cultural heredity or does the principal cause lie in roots over which the environment has little play? In the present study we shall attempt to present further evidence on the possible cause of the educational problem and its implications, and believe that psychological tests and other measures of proficiency will aid in the solution of this perplexing question.

2. Measures of Averages, Dispersion and Overlapping

This section deals with the statistical treatment of the data. Since there are two general sets of material,—first, grade-location, teachers' ratings of intelligence and of school work and social-economic status of parents, and second, the results of the mental tests,—it will be convenient to deal at first with each class of data separately.

A. School Success and Teachers' Estimates.

i. Grade Location. The position of any pupil in the scale of grades may be thought of as a common measure of his school success. Table XVIII shows the percentage of the total number of 12-year-old children in the respective grades. The facts of retardation brought out above would lead one to expect that in a group of children of such an age one would find a wide range of grades covered. Since the purpose of this study is to compare three groups of pupils of Latin stock with pupils who are North European (non-Latin) in origin, it will be convenient throughout to use the latter as the point of departure.

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TABLE XVIII. PERCENTAGE OF 12-YEAR-OLDS IN VARIOUS GRADES BY RACIAL GROUP

(A)

Grade	American S. J.	Italian S. J.	Spanish-Mexican
I HS	.3		
H 8	.6		
L 8	3.4	.5	
H 7	6.9	2.6	3.8
L 7	24.3	4.1	
H 6	12.0	6.1	9.4
L 6	18.6	16.8	13.2
H 5	11.1	18.3	3.8
L 5	8.9	9.2	16.9
H 4	6.0	9.7	20.7
L 4	3.7	10.7	15.2
H 3	1.8	13.3	7.5
L 3		6.1	1.9
H 2		2.0	5.7
L 2			1.9
H 1		.5	
Total Nos.	316	196	53

(B)

Grade	American Misc.	Italian Misc.	Portuguese
8	3.3		1.3
7	43.3	14.1	9.0
6	34.4	28.0	26.9
5	11.1	24.5	32.0
4	6.6	24.5	21.7
3	1.1	7.0	7.7
2		1.4	1.3
Total Nos.	90	57	78

It is evident at once that the range of grades for the non-Latin group out-reaches that of any of the other groups at the upper end. In the case of the San Jose data, the Italian group has a range of fourteen half grades, the Americans but twelve. The former, however, run from high first grade to and including low eighth grade, the latter reaches from the high third to the freshman high school, inclusive. Inspection of the arrays indicates that there are really two modal locations of the pupils in all three groups. The Americans are located principally in the low seventh and in the low sixth; the Italians in the high fifth and low sixth, and in the high third and the low fourth; the Spanish-Mexicans are located in the low sixth (a comparatively small group) and in the low fourth, high fourth and low fifth. Forty-three per cent of the total number of Spanish-Mexicans are located in these latter three half-grades. Observation of the percentages in Table XVIII shows that the point between the high fifth and the low sixth may be considered as the median for the Spanish and Italian groups combined. Using this as a reference, the figures reveal that 47 per cent of the Americans exceed the low sixth grade level of these Latin groups.

The facts of the second set of data in Table XVIII indicate much the same sort of comparison. Here the data had to be

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thrown into whole grades which smooths out some of the differences that would be apparent in grouping by half-grades. The modal grade for the Portuguese is the fifth, that for the Misc. American the seventh, while the Misc. Italians are spread fairly evenly over the fourth, fifth and sixth grades, with a slight preponderance in the last. It should be noted that the Misc. Italian and Misc. American groups are very nearly identical with the San Jose Italian and American data respectively.

The facts of grade location, then, would point to decided differences in the Latin and non-Latin groups, a difference on the average of from one and one-half to two grades. It is at once questioned: Is this difference due to the language handicap of the former group, or is it due to difference in mental capacity in the two groups? What light will the teachers' estimates of general intelligence and of school work throw on the possible cause of this, or at least, will there be any general similarity of these measures of ability and education and the standing of the pupils in the grades?

ii. Teachers' Estimates of General Intelligence. Table XIX shows the means, with their S. D.'s, of the teachers' estimates of general intelligence and of school work.[11] The ratings were taken twice and these figures are for the mean of the two. The ratings on the American children seem a little more reliable, as indicated by the P. E. of the means, than those for the Latin groups. One would expect that the teachers would be somewhat more constant in their estimation of the American children. The Latin children are probably a little more favorably looked upon by the teachers than the non-Latins because of over-ageness. It is the common experience of all investigators that the teachers have a decided tendency to over-estimate the intelligenc of these immigrant pupils due to their chronological age. The 12-year-old Italian, for instance, who is in the low fourth grade is large for his age and probably average in school performance, hence the teacher unwit-

[11] The estimates were made for both intelligence and school work on the following seven-fold scale:
1—Very Superior.
2—Superior.
3—High Average.
4—Average.
5—Low Average.
6—Inferior.
7—Very Inferior.
In rating intelligence the teachers were instructed to rate the pupil in comparison with all 12-year-olds; in rating school work, to compare him with the average performance of his particular class.

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tingly rates him as average in intelligence, forgetting that the average 12-year-old is really in the sixth or seventh grade. This subjective factor creeps in constantly in spite of careful instructions, both oral and written, to the contrary. Any rating, of course, is as much a measure of the person making the rating as of the person rated. Furthermore, a rating is really a rank in a class, not an objective measure as we think of them so commonly.[12]

TABLE XIX. AVERAGES AND MEASURES OF DISPERSION IN TEACHERS' ESTIMATES OF INTELLIGENCE AND QUALITY OF SCHOOL WORK

	INTELLIGENCE				SCHOOL WORK			
Race Group	Mean	S.D.M.	P.E.M.	S.D.Dist.	Mean	S.D.M.	P.E.M.	S.D.Dist
American S. J.	3.65	.12	.08	2.15	3.59	.13	.09	2.37
Italian S. J.	4.42	.16	.11	2.22	4.85	.16	.11	2.24
Portuguese	4.66	.23	.16	2.05	4.68	.22	.15	1.89
Spanish-Mexican	4.88	.30	.20	2.48	4.42	.28	.19	2.02
Italian Misc.	4.35	.30	.20	2.28	4.55	.31	.21	2.31
American Misc.	3.90	.20	.14	1.92	3.95	.20	.14	1.91

TABLE XX. DIFFERENCES IN THE MEANS AND THE P. E. OF DIFFERENCES

	INTELLIGENCE		SCHOOL WORK	
Race Groups	Difference in Means *	P. E. of Difference	Difference in Means	P. E. of Difference
American and Italian S. J.	.77	.14	1.26	.14
American and Portuguese	1.01	.18	1.09	.18
American and Spanish-Mexican	1.23	.22	.83	.21
American Misc. and Italian Misc.	.45	.24	.60	.25

* All the differences are "less" than the American means.

Table XX shows the differences in the means of the groups in teachers' estimates of intelligence. These reveal in another way that the Italians are nearer the Americans in performance, the Spanish-Mexicans farther away, with the Portuguese between. The P. E.'s of the differences are insignificant where the differences are at all large; where they are small the P. E.'s are large, showing, as is evident, that the difference while small may fluctuate within the limits of the P. E. and yet not be far different than at present. It means practically that the difference is of no importance.

The American groups out-rank the Latins about .8 of one class-rank on the seven-fold scale. Just how much this difference is in terms of objective scores in a given test or in mental age it is difficult to determine. Also whether the units on such a scale are to be considered equal or variable, is unknown. And more difficult to decide is whether in the minds of the teachers, they were so considered. At any rate one may say that roughly the mean difference is about one-eighth of the entire range on the scale of estimation. If the range of grades be represented as eight,

[12] Cf: (17), (111) and (110, pp. 24, 26) on difficulties in objective trait rating by teachers.

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then the difference in the mean grade would be approximately one-sixth to one-eighth of the range there. This perhaps gives a crude indication of the comparative likeness of these two measures of the pupils' ability to take on the traditional education offered by the public schools.

TABLE XXI. PERCENTAGE OF PUPILS RECEIVING GIVEN RATINGS IN INTELLIGENCE AND SCHOOL WORK [18]
(Teachers' Estimates)

Rating Scale	RACE GROUPS							
	American S. J.		Italian S. J.		Portuguese		Spanish-Mexican	
	Intell.	Schwk.	Intell.	Schwk.	Intell.	Schwk.	Intell.	Schwk.
1.0	.9	2.8						
1.5	3.0	1.9	.5	1.5	1.9		1.9	
2.0	11.1	7.3	2.6	1.5	1.3	2.6		3.8
2.5	8.5	5.0	3.5	1.0	1.3	1.3	1.9	1.9
3.0	14.2	12.3	5.1	10.2	3.9	2.6	3.8	5.7
3.5	13.2	14.2	10.7	8.1	7.7	5.1	7.5	3.8
4.0	25.3	24.1	24.4	26.0	15.3	25.6	15.2	32.0
4.5	9.4	12.0	11.2	12.8	17.9	21.8	28.3	11.3
5.0	8.5	11.1	20.4	18.3	17.9	25.6	15.2	20.7
5.5	2.8	3.1	9.2	9.7	16.6	6.4	11.3	13.2
6.0	1.6	4.7	3.1	3.1	9.0	3.8	5.7	3.8
6.5	.6	.6	1.0	4.1	6.4		3.8	1.9
7.0	.3	.6	3.1	3.5	2.6	5.1	5.7	1.9

Table XXI gives the percentages in each one-half of class-rank, *i. e.*, on seven-fold scale, for the groups. Here, as in grade location, the American group indicates a skewness toward the upper end of the curve. This may indicate as does the skewness in grade location for age, that the American groups are superior to the average for their age throughout the country at large. It must be constantly borne in mind that the comparison is between the older American stock and the newer immigrant constituency. The mean age-grade location for the total school population must lie somewhere between the two. So with the estimates of native ability, when compared to the "average" child who is in this age-group. In any case, again, there is marked difference in the estimated intelligence of the groups. The Latins falling more closely together, with the Americans out-stripping in the higher ranges, and being not only relatively better off in the latter, but absolutely, for in no case did any Latin pupil receive a mean rating of "Very Superior" in general mental ability, while, on the other hand, the Latin group had a decided percentage in its favor who were considered "Very Inferior."

Whatever be the consensus of opinion as to the validity of the teachers' ratings of pupils (121), the fact remains that it has considerable validity for rough classification and correlational treatment has shown that while it is not so reliable for prognostication

[18] This table computed from Tables II, IV, VI, VIII. The figures are based on the mean of two estimates.

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as are mental measurements, it is much more so than random subjective impression that this pupil is thus, and that one so.

The significant matter for the present purpose is the apparent close relation of these estimates to grade location, and the all-around superiority of the American children in the minds of the teachers. While taking into account the likelihood of considerable error in teachers' ratings, the indubitable fact remains that these ratings do show wide differences in the abilities of the groups in question.

iii. Teachers' Estimates of School Work. The ratings on quality of school work were on the same seven-fold scale as the estimates of intelligence. In this case, the teacher was requested to compare the child to be rated with the average child in his grade. Table XXI shows the facts concerning the percentage of each racial group falling in the scale. Again the Americans are much more variable than the Latin groups, but in the case of the C. T. the groups are much farther apart than they are in estimates of intelligence. The mean difference of all the means of the groups for the school work is .94 of the range of one class-interval or class-rank in the scale. This is nearly one-seventh of total range.

Table XX presents the mean differences in the C. T. of the estimates of school work for the several groups. As in the case of rating intelligence there persists a considerable divergence of the Latins from the Americans.

It is also instructive that while 3 per cent of the American group averaged "Very Superior" in the rating of school success, none of the Latin group warranted the same. Yet one must be careful not to overlook the facts that may go to influence any teacher's rating of a child (111, pp. 95, 97). Not only personal factors of appearance, impression and prepossession generally affect the ratings, but also the fact that what may constitute "average" in school work to one teacher may not be so to another.

In the case of school work, as in rating intelligence, the overageness of the immigrant children gives them an advantage with the teachers. The fact that they are retarded in the grades, sitting perhaps a second time in a particular section, is ignored or forgotten when the comparison is with pupils much younger and attacking the school work for the first time. Even these facts do not prevent marked differences in the mean performance at each grade for the common age of 12 years.

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TABLE XXII. MEAN TEACHERS' RATING OF SCHOOL WORK FOR EACH GRADE, ALL PUPILS BEING 12-YEAR-OLDS

Grades	H 2	L 3	H 3	L 4	H 4	L 5	H 5	L 6	H 6	L 7	H 7	L 8	H 8	I HS
Amer. S. J.			5.00	4.75	4.71	4.21	4.13	3.68	3.68	3.46	3.27	2.68	*	*
Italian S. J.	5.25	5.00	5.65	4.88	4.70	4.69	4.00	3.91	4.25	3.75	3.10			
Spanish-Mex.	5.34	4.50	4.25	4.87	4.40	4.55	3.25							
			3		4		5		6		7			
Portuguese			5.16		4.67		4.28		4.29		4.57 †			

* Omitted because of too few cases.
† Portuguese in full grades.

Table XXII shows this feature of the matter of school work as related to grade and age factors. Tabulating the 12-year-olds for American and Latin groups by their grade location and then determining the mean of the teacher-ratings of school work for those in the particular grades, one is able to see again that the teachers' estimates are about what one would expect. Not only is the retarded 12-year-old back in his grade location, but he is also retarded in his school ability in the grade in which he is found. The table shows that beginning with the lowest grade in the case of the Italian children, the mean of the average ratings on school work are below the average for that particular grade, but as one goes up the scale toward the grades normally occupied by the 12-year-olds he finds the mean approaching the average for the grade. At the high fifth the Italian seems to be average for his grade, he is slightly better for the low sixth, not so good in high sixth, and again better in the next two half grades. The number of cases is small in high seventh and there is but one case in low eighth. In the case of the Americans much the same thing is observed. The 12-year-old who is in the lower grades is poorer in his class than the much younger but abler pupils even though he has sat in his grade perhaps two or three terms. The Americans rate "average" at about the same point as the Italians (between the high fifth and the low sixth grades). But both the Italians and, more so, the American children, who are in the seventh and eighth grades do better than the average of the class. As the 12-year-olds in the lower grades are much more retarded than the younger children in these grades, so the 12-year-old who is advanced in his grade is also superior to the average of his class.

Like figures are given in the table for the Portuguese and Spanish, but the numbers in the separate classes are rather small. The Portuguese, it will be recalled, are tabulated only in whole grades. But, in general, the same situation holds for these pupils. The 12-year-old who is in the lower grades is poorer in school performance than his class average, although he has had the advantage of additional time, study and teachers' instruction.

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B. The Social-Economic Status of the Parents.

The parents' occupations[14] were noted when the tests were given, and were later checked up in doubtful cases through the principal's office. While a somewhat extensive rating scheme has been used for correlational treatment, a simpler scale, that of Taussig (109, pp. 134-8) will be employed here for a brief review of the important facts about the occupational levels of the parents of the children. Taussig outlines five classes of vocations, largely on the basis of economic standing. It is not an attempt to rate the occupations by the amount of intelligence required to make a success of the same. Class I includes the unskilled day laborer; II, the semi-skilled; III, the "aristocracy of the manual laboring class," the skilled workmen; IV, the lower middle class ("the white-collared working class"). "Here are clerks, bookkeepers, salesmen, small tradesmen, foremen, teachers of the lower grades," etc. Class V constitutes the "well-to-do": "those who regard themselves as the highest class." It includes the professionals, the business men, managers of industry, higher public officials and the smaller propertied classes generally. Taussig omits in his classification those of great wealth, on the assumption that they do not constitute an occupational group. Other students have used somewhat different classifications (16, 54, 84) but these are not especially different in general outline from Taussig's.

TABLE XXIII. PERCENTAGE OF PARENTS OF PUPILS IN EACH RACIAL GROUP IN EACH OF THE FIVE CLASSES OF TAUSSIG

Race Group	Percentages in Class: I	II	III	IV	V
American S. J.	5.7	16.1	38.0	31.6	8.6
Italian S. J.	52.0	18.9	16.3	12.8	
Portuguese	43.6	19.2	10.2	26.9	
Spanish-Mexican	39.6	30.2	22.6	7.5	
American Misc.	8.9	13.3	48.9	24.4	5.5
Italian Misc.	35.1	21.1	10.5	33.3	
Average for Americans	7.3	14.7	43.5	28.0	7.0
Average for Latins	42.6	22.7	14.9	20.1	

Table XXIII shows the percentage of the parents of the pupils in each occupational classification. The Latins distribute themselves over the lower four classes. The big bulk of them are in I, II and IV. The fourth class includes not only small shop keepers, but small land holders, and a good many of the Latins in this class come under this occupation. There are relatively fewer of them in the skilled trades. The Spanish-Mexicans run higher in the skilled trades than the Portuguese or Italians. So, too, the Misc. Americans have 10 per cent more in the skilled trades group

[14] By "parents" is meant the father if living, if not then the mother; if she be deceased, then the guardian.

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than the S. J. Americans. On the other hand, the Spanish-Mexicans have but a low percentage in class IV. The Portuguese run up toward the American percentages in class IV, largely because of their property holdings at Half Moon and Milpitas.

The most striking feature of this array of percentages is the fact that *none of the Latins* have parents who fall in the upper class. The new-comers into this country from South Europe are not from the professional classes. What one or two generations would indicate in these same families would be interesting to know. The writer ventures a guess that there will result a realignment of groupings, and that these will follow in general lines the innate capacity of the family stocks. Those families possessing good mental ability will produce the offspring who will make use of the educational-professional opportunities about them, in contrast to the lack of such opportunities for professional life in the present generations, which must establish themselves economically in the New World.

Is there any relation between the intelligence of the children and the present occupational groupings of the parents? If the mass of immigrants from the Old World are all at about a common economic level upon arrival here (the writer does not believe they are), has any shifting about in occupational levels taken place in this country which result in classification in groups more commensurate with their mental capacity? Table XXIV indicate a rough answer to this question by showing the mean score in alpha and beta for the four principal samples of racial groups in the five-fold classification. One perceives that there is a scaling off of average score corresponding to the steps of the scheme of classification itself. True, one cannot say that such a ratio is the correct measure of mean intelligence required of the occupation in any case. But it is interesting that such a gradation occurs. The overlapping in alpha and beta between classes is large. Even the performance of beta indicates the fact, although not so markedly as alpha. Other investigators have found very similar relations (2, 16, 84).

TABLE XXIV. MEAN ALPHA AND BETA SCORES PER THE OCCUPATION CLASSIFICATION OF THE RACIAL GROUPS

	Americans S.J.		Italians	S.J.	Portuguese		Spanish-Mexicans	
Taussig Scale	Mean A	Mean B	Mean A	Mean B	Mean A	Mean B	Mean A	Mean B
V	83.35	71.10						
IV	67.30	70.35	40.70	68.71	36.50	63.25	39.00	57.00
III	54.75	68.66	36.06	59.75	30.50	57.42	42.00	58.88
II	41.60	64.00	35.92	55.75	29.50	57.62	18.16	52.78
I	48.40	60.70	19.57	49.12	13.30	42.00	21.67	46.22

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It is evident that the study is dealing with pupils from families of widely diverging social-economic classes, yet even the "native" American group contains but few in the very highest classification. Neither are there many parents of these children who warrant the term "common, unskilled labor." The principal difference lies in the third and fourth classes of Americans as compared to the first and second for the South Europeans.

The writer desists from entering at this point into a polemic as to the case for inheritance versus environment as the cause of these differences. It is sufficient to note that considerable difference does exist, and must be taken into account in interpreting the total results of the study.[18]

C. Results from the Mental Tests.

The general measures of averages and dispersion have been tabulated into one table (Table XXV), but for matter of convenience the test results had best be dealt with under the separate headings first. Analysis of the individual tests in alpha and beta follow later.

i. The Army Alpha Findings. Inspection of Table XXV reveals striking differences in the performance of these groups of 12-year-olds in the alpha test. The American groups out-reach the best Latin average by double the latter's score. Not only are the differences in the means of the group large, as shown by Table XXVI of the differences in the means with the P. E. of the differences, but the variability of the American groups is greater than that of the Latins. The Misc. American group, however, is not so variable as the S. J. American, although the difference in the means of these two is not large. Table XXVI shows the reliability of the differences in terms of the P. E. of the differences. So far as the Latin and the non-Latin groups are concerned, the differences are all significant and the P. E.'s indicate that the sample data are unselected. The differences between the two American

[18] Since this was written Arlitt (2) has pointed out the possible effect that economic status may have on the test results of the children of various races. The writer does not deny that economic status may play a part, but certainly, as will be shown subsequently, there is very little correlation between Taussig's classification and the mental status of the groups. Were the two so casually related there ought, it seems, to be considerable correlation between economic status and results in the tests. Inspection of Table XXIV shows that there is no uniformity in the intelligence level of the children of various race groups in the several economic classes; throughout, the scale itself is so general and the lines of ability and skill in reference to intelligence so poorly drawn that no generalization may be drawn from it concerning the influence of environment on mental ability as shown in tests.

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TABLE XXV. AVERAGES, MEASURES OF DISPERSION AND PERCENTILES FOR ALL DATA

	Race	No.	Mean	SDm	PEm	SDdt	SDsd	PEsd	PE dt	Mdn	SD mdn	PE mdn	Q	Dp.90-p.10	PERCENTILES .05	.10	.20	.25	.30	.40	.50	.60	.70	.75	.80	.90	.95
ALPHA	Amer. S. J.	314	60.40	1.54	1.04	27.40	1.09	.74	18.48	59.21	2.13	1.44	19.81	73.10	18.50	25.26	35.80	41.21	43.42	49.94	59.21	66.74	76.10	80.82	85.74	98.36	107.81
	Ital. S. J.	191	28.20	1.49	1.01	20.60	1.05	.71	13.90	24.92	2.12	1.43	15.00	50.34	2.05	4.09	8.80	11.03	13.20	18.97	24.92	30.58	37.73	41.02	44.43	54.43	68.58
	Portuguese	77	27.20	2.64	1.78	23.20	1.87	1.26	15.65	22.00	3.13	2.11	15.11	51.34	1.33	2.67	5.83	8.25	10.42	16.50	22.00	27.50	35.25	38.46	47.50	56.00	78.13
	Span.-Mex.	51	25.90	2.66	1.79	19.00	1.88	1.27	12.82	23.67	4.12	2.78	14.47	53.83	1.91	3.84	7.50	9.32	11.42	16.25	23.67	28.33	34.13	38.25	42.50	57.67	63.13
	Ital. Misc.	57	25.45	2.73	1.84	20.60	1.93	1.30	13.89	21.75	2.36	1.59	8.98	42.91	2.14	4.28	11.50	13.88	15.68	18.83	21.75	24.70	30.06	31.84	33.63	47.17	58.13
	Amer. Misc.	88	58.60	2.71	1.83	25.40	1.92	1.30	17.13	61.04	3.52	2.37	17.67	70.91	10.50	21.50	35.10	39.50	45.00	53.83	61.04	67.50	73.90	76.83	80.17	92.41	96.41
BETA	Amer. S. J.	307	68.30	.67	.45	11.75	.48	.32	7.03	68.88	.73	.49	7.59	31.13	47.20	51.89	58.53	60.97	63.10	66.32	68.88	71.34	74.14	75.96	78.22	83.02	86.54
	Ital. S. J.	192	54.00	1.16	.78	16.10	.82	.55	10.90	54.75	1.50	1.01	10.42	41.56	25.03	31.58	39.95	44.75	46.84	50.91	54.75	59.79	63.63	65.58	67.58	73.14	79.25
	Portuguese	75	52.50	1.69	1.14	14.65	1.20	.81	9.88	52.03	2.32	1.56	11.02	39.31	29.13	31.94	39.75	42.09	44.44	48.25	52.03	56.00	61.00	64.13	66.42	71.25	76.00
	Span.-Mex.	53	52.65	2.19	1.48	15.95	1.55	1.05	10.76	52.96	2.39	1.61	11.02	36.83	23.00	35.05	40.50	43.81	45.94	49.25	52.96	56.50	60.25	65.84	67.50	71.88	76.50
	Ital. Misc.	54	54.55	1.79	1.21	13.20	1.27	.86	8.90	54.75	2.63	1.77	10.24	35.63	*	35.75	42.46	44.39	49.84	52.75	54.75	58.17	62.55	64.86	67.04	71.35	74.05
	Amer. Misc.	86	65.95	1.48	1.00	13.75	1.05	.71	9.27	66.67	1.66	1.12	7.82	35.40	40.50	47.35	56.66	58.61	60.39	61.32	66.67	69.95	72.82	74.25	76.31	82.75	88.13
COMBINED ALPHA AND BETA	Amer. S. J.	305	129.45	2.05	1.38	35.80	1.45	.98	24.15	129.23	3.01	2.03	26.98	92.83	69.49	82.25	96.11	102.16	107.79	118.48	129.23	139.75	150.64	156.09	161.92	175.18	187.06
	Ital. S. J.	187	81.55	2.50	1.69	34.20	1.77	1.19	23.07	81.03	3.73	2.56	25.24	87.03	26.22	38.22	49.68	55.15	60.36	70.75	81.03	90.62	100.26	105.65	110.95	125.25	141.92
	Portuguese	74	76.55	4.93	3.33	42.40	3.48	2.35	28.60	73.08	5.86	3.95	27.01	87.19	27.46	38.04	47.75	52.10	56.46	64.86	73.08	83.06	99.31	106.11	112.84	134.15	*
	Span.-Mex.	51	77.95	4.44	2.99	31.20	3.90	2.63	21.04	75.90	6.12	4.13	20.79	85.13	27.50	39.95	50.15	55.25	60.21	68.06	75.90	84.08	92.58	96.83	103.75	126.08	134.58
	Ital. Misc.	54	79.35	4.14	2.79	30.40	2.93	1.98	20.50	76.67	5.52	3.72	18.68	75.85	*	42.30	52.11	57.02	61.44	69.90	76.67	85.25	92.00	94.38	98.75	118.15	142.75
	Amer. Misc.	84	127.25	3.75	2.53	34.40	2.66	1.79	23.20	128.45	5.29	3.57	23.19	91.02	60.55	77.35	97.08	104.04	110.04	121.14	128.45	135.75	146.15	150.42	156.02	168.37	174.83

* Impossible to compute.

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groups and the two Italian groups are negligible, as shown by the size of the P. E. of these differences as compared with the actual value.

TABLE XXVI. DIFFERENCES IN THE MEANS AND MEDIANS IN ALPHA AND BETA TOTAL SCORES WITH P. E.'s OF DIFFERENCES

	ALPHA		BETA		COMB. A. & B.	
Difference between	M.	Mdn.	M.	Mdn.	M.	Mdn.
American S. J. and Italian S. J.	32.20	34.29	14.80	14.13	49.90	48.20
P. E. difference	1.45	2.08	.9	1.12	2.18	3.27
Difference between American S. J. and Portuguese	33.20	37.21	15.80	16.85	52.90	56.15
P. E. difference	2.06	2.55	1.22	1.63	3.60	4.44
Difference between American S. J. and Span.-Mex.	34.50	35.54	15.65	15.92	52.50	53.33
P. E. difference	2.07	3.13	1.55	1.68	3.29	4.60
Difference between Amer. S. J. and Misc. Amer.	1.80	1.83*	2.35	2.21	2.20	.78
P. E. difference	2.10	2.77	1.10	1.22	2.88	4.11
Difference between Italian S. J. and Misc. Italian	2.75	3.17	.55†	.00	2.20	4.56
P. E. difference	2.10	2.14	1.44	2.04	3.26	4.52

* The Misc. American group exceeded the S. J. American.
† The Misc. Italian group exceeded the S. J. Italian. All other differences are in favor of the S. J. groups—American or Italian.

Table XXV gives the S. D., Q. and D.[16] as measures of the variability of the groups. The P. E. for the S. D. has been calculated and these indicate throughout the high reliability of the same. The S. J. American group and the S. J. Italian groups are throughout the most comparable; not only are the samples larger, but are probably much less selected. On the other hand, considering the size of the Portuguese and Spanish-Mexican groups, their measures of dispersion, as well as those of C. T., are very reliable.

One observes at once that the data really fall into two groups: the American children on the one hand, and the children of the Latin immigration on the other. It will be more and more evident that on the whole the latter might have been treated as one group without altering the significance of the differences to any extent.

The question naturally arises: How do these groups compare with the performance of the average 12-year-old in the school population generally? This query may be answered by comparing various percentile grades with the age-norms for army alpha. There are two age-norms for alpha,—the first determined in the army itself (141) and the second a combination of norms determined separately by Kohs and Proctor. The norms are both stated in terms of Stanford-Binet Mental Age. In the following table the pertinent comparisons are made:

[16] Cf: (58) for discussion of D.

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TABLE XXVII. STANDING OF 12-YEAR-OLDS WHEN COMPARED TO THE MENTAL AGE NORMS FOR THE ARMY ALPHA TEST[17]

Race Group	Upper 75 % Exceeds MA for the		Upper 50 % Exceeds MA for the		Upper 25 % Exceeds MA for the	
	K-P Norms	Army Norms	K-P Norms	Army Norms	K-P Norms	Army Norms
American S. J.	11-8	12-6	12-8	13-9	14-4	15-3
Italian S. J.	9-8	10-0	10-8	11-6	11-9	12-6
Portuguese	9-6	9-9	10-6	11-3	11-6	12-4
Spanish-Mexican	9-6	9-9	10-6	11-3	11-6	12-4
Italian Misc.	9-9	10-4	10-6	11-3	11-0	12-0
American Misc.	11-6	12-4	13-0	14-0	14-0	15-0

It is noticeable that the American group is practically normal for its age, or slightly in excess, whereas the Latin groups all fall from one to two years below. On the average about 25 per cent of the Latins exceed the norm for their chronological age. Inspection of this table reveals the fact that the norms for the army were slightly lower than those for the school children calculated by Kohs and Proctor. The Latin groups compare somewhat more favorably with the Americans when measured against the army norms. It is likely, especially in the ages 13 and above, that both Kohs and Proctor were working with rather selected samples, since so many boys, at least, in these ages are neither in the elementary nor the high schools. And it is well-known that, on the whole, the mentally retarded are the first to withdraw from school.

It is once more evident that the Latin groups do not reach the normal performance that the American groups do. In grade location they are one to two years behind their competitors, in school work likewise, in teachers' estimates of their intelligence also, and here in the actual findings of the tests, much the same thing is shown.

ii. The Army Beta Results. The second section of Table XXV gives a summary of the principal measures of averages and of dispersion for the beta tests. The differences in the measures of C. T. are again in favor of the American groups. While the differences in means are not so great as with alpha, it must be recalled that the score-range of beta is about half that of alpha. Further, as will be noted later, there are probably differences in the nature of the two tests that need be taken into account in interpreting the differences. The P. E.'s of the means and of the medians show that these are very stable measures for this age-group in terms

[17] Estimated from percentiles. Fractions less than ¼ year ignored. K-P refers to Kohs-Proctor. These latter norms were worked out by W. M. Proctor and S. C. Kohs at Stanford during the year 1918-19. These norms are obtainable from Dr. Terman at Stanford.

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of the test. While the P. E.'s for the Portuguese and Spanish-Mexican children are larger, they nevertheless are so small as compared to the C. T. that the latter are within narrow limits the true measures. The size of the sample is largely responsible for the greater P. E. with these two groups, for the P. E. of the Misc. American and Misc. Italian groups is relatively the same as that for the Portuguese and Spanish-Mexican classes. Table XXVI shows the differences in the means of the beta results, with the P. E.'s of the differences. These serve as another check upon the extent to which the observed differences fall within the true probabilities. The means seem a trifle better measure of C. T. and of difference than the medians, but on the whole, the median beta is somewhat more stable as a measure of C. T. for this test than is the median alpha for alpha. In beta, as in alpha, the differences between the S. J. American and the Misc. American groups is insignificant. For the two Italian groups, the medians for beta coincide.

Considering the matter of variability, the results of beta indicate that the American groups are not so variable as the Latins. The S. J. Americans in particular seem to be less variable than the Misc. Americans, the latter coming within practically the same S. D. as the Misc. Italians. The S. D., the Q. and the D. all indicate that the S. J. American group is much more homogeneous in performance in the beta test than in the alpha. Reasons for this will appear subsequently. It may be said that the difference is not extreme, not nearly so much so as is the comparative variability of the Latins and the non-Latins in alpha.

There are no norms available of the beta applied to school children, but the following table gives the comparison with the mental age ratings for beta in the army:

TABLE XXVIII. STANDING OF 12-YEAR-OLDS WHEN COMPARED TO THE MENTAL AGE NORMS FOR THE ARMY BETA TEST [18]

Race Group	Upper 75% Exceeds the MA Norm of Army	Upper 50% Exceeds the MA Norm of Army	Upper 25% Exceeds the MA Norm of Army
American S. J.	12-8	13-8	14-6
Italian S. J.	11-4	12-0	13-4
Portuguese	11-0	12-0	13-0
Spanish-Mexican	11-8	12-0	13-8
Italian Misc.	11-4	12-0	13-4
American Misc.	12-6	13-6	14-4

[18] Estimated from array of percentiles. Fractions less than ¼ year MA ignored. Cf: (141, p. 133).

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Here it appears that compared with the men in the army from whom the beta norms were determined, the Latin groups are practically normal for their chronological age in the test performance. The American groups, however, again outstrip them by a year and a half, which would seem to indicate that were norms worked out on the average American school population they would exceed the norms for the army groups as do similar school norms for alpha. It is furthermore difficult to tell whether the beta in the low scores is comparable to the Binet. There is some evidence that it is not so reliable when compared to Stanford-Binet as the alpha.[19] It is also of little value in discriminating differences in mental levels in the upper ranges of intelligence. Were the test better able to differentiate general intelligence above the 12-year norm, the American groups would in all likelihood outstrip the Latins more than they did. Still further, these norms are not corrected for reliability and the reliability coefficient of the beta is somewhat less than that of alpha. At any rate, the important feature is the superiority of the Americans even in this test in which they are at a disadvantage.

iii. The Combined Army Alpha and Beta Results. The last section of Table XXV shows the averages and measures of variability for the children of the six groups when alpha and beta scores are combined. While this, in a sense, is a mere summation of the two tests, it serves as a better measure of the mental performance of the groups than either test singly. Although it may be questioned whether for practical school purposes a test need be as long as the combined alpha and beta, or that the half of it need be performance, yet it is true that the two scales together give a little more complete "clinical" picture of the behavior of the groups in responding to the tests. Of course, with certain limitations on the efficacy of the tests,—the alpha being somewhat too difficult for the 12-year-old Latins in the lower grades, and the beta not discriminating enough for the non-Latins in the upper grades,—it follows that the combination of the two tends to wipe out this difference, and make the Latin and the non-Latin groups somewhat nearer together.

The reliability of the means and of the medians for the combined tests is very high. These two measures of C. T. are much more nearly equal than they were for alpha or beta alone. This

[19] (73) pt. II: ch. 7: pp. 886, 887-8, 894-5.

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may be another way of noting the general smoothing of the divergence due to the summation of the two batteries of tests. Table XXVI indicates the comparative differences in means and medians. The Italians come slightly nearer the Americans than the other two Latin groups, but as in other measures the three Latin classes are for all practical purposes on much the same level of performance.

In summary of the findings on the differences in the C. T. of these groups with these tests, one notes that the differences in the means of the alpha in the case of the S. J. Italians and the S. J. Americans is roughly one-seventh of the total range of the test, the differences in these groups for beta is one-eighth of the range for the beta test, and in the case of the two tests combined as one battery (using the same scoring as when separate) the difference is between one-seventh and one-eighth of the range of the combined batteries. The differences between the American groups and the other two Latin groups is nearly the same, being slightly greater for the Portuguese and the Spanish-Mexican when compared with the S. J. Americans: about one-sixth of the range for alpha, one-eighth for beta, and one-sixth for combined alpha and beta.

Recalling that the difference in the C. T. of the teachers' estimates of school work and of intelligence were between one-sixth and one-eighth of the range of the scales used, and likewise for the difference in grade location, one must conclude that the whole evidence points to significant differences in these groups by about the amounts found in these several measures of educability and mentality.

D. The Measurement of Overlapping.

Not only are the differences in C. T. important but the total amount of overlapping in the distribution of scores of the several groups is even more so. Especially in treating racial differences and in the determination of the proper classification of pupils in school and analogous situations, it is important to know to what extent any given measure in one distribution reaches or exceeds or is identical with a similar measure in another distribution. The fact of overlapping in school ability in pupils has been investigated (63), but only recently has Kelley (57) shown that the true overlapping can only be determined when the reliability of one's measures is known.

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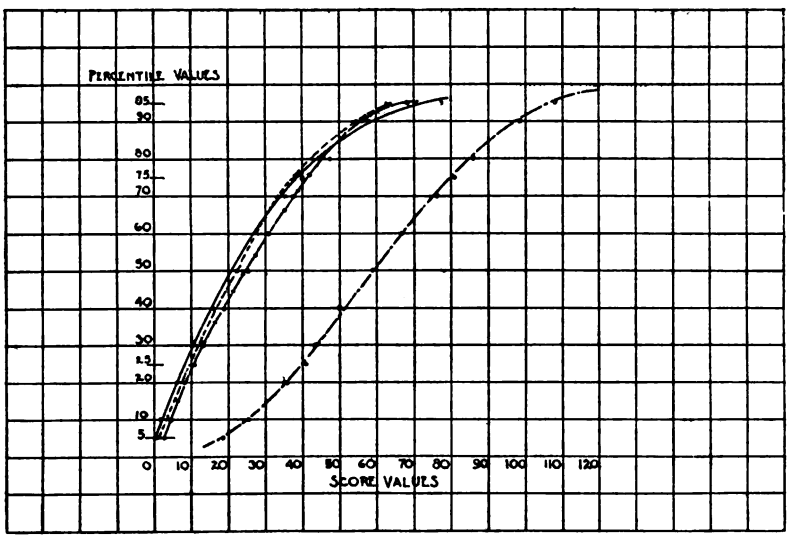
The coefficient of reliability determined by using Brown's formula* for alpha was .91, the same for beta was .81. Using Kelley's formula, which requires the coefficients of reliability, the measures of true overlapping were determined. Table XXIX shows the extent of overlapping, noting first the percentage of Latins that exceed the lower quartile, the median, and the upper quartile of the S. J. American group; second is shown the per-

GRAPH I. CURVE OF OVERLAPPING ON ALPHA SCORES—Actual Data.



Legend: Data from Table XXV.

——————: Portuguese.
——·——·——·——: S. J. Italian.
— — — — — — : Spanish-Mexican.
—— - —— - ——: S. J. American.

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* Brown's formula: Coeff. of rel. $\frac{2r}{1+r}$ is well known (cf: 20).

The determination of the reliability of the tests by this method was somewhat difficult. Two comparable forms of alpha were not given to the same children, and there was but one form of beta. Two methods were open: one was to select alternative items in the various tests of A and B tests, but at Dr. Kelley's suggestion this method was abandoned. In place of that an attempt was made to split each battery into two comparable halves and correlate one half against the other. Two approaches in the choice of comparable halves was used: (1) It is assumed in educational psychology that two tests that correlate very highly with each other are testing the same functions. Those tests that inter-correlated most highly were placed in separate halves of the tests to be correlated by Brown's formula. As a check upon this the judgments of ten competent psychologists from the largest universities of the country as to which tests tended to test the same mental functions were averaged and on the basis of the tendency of these averages to approach each other in magnitude, that is, in terms of the paired tests (being scaled oc as like or unlike in testing functions, in terms of a scale), they were put into the separate compartments. The agreement between the results from this method and the other was very striking. In case of doubt the army inter-correlations were taken as more reliable. The tests finally selected were for alpha: tests 1, 2, 5, 7 to be correlated against 3, 4, 6, 8. In Beta: tests 1, 2, 3, 5 against 4, 6, 7.

The material on judgments of the psychologists was secured from the personal files of Dr. Terman. The army data was from the Memoirs (73, p. 634).

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centage of S. J. American scores exceeding the three quartiles for the various Latin groups. In order to indicate the extent to which the correction by Kelley's formula differs from the overlapping in the actual measures, the percentages exceeding the same quartiles are given when computed from the actual distribution.

TABLE XXIX (A). PERCENTAGE OF THE FOLLOWING RACIAL GROUPS EXCEEDING THE S. J. AMERICANS—ACTUAL AND TRUE OVERLAPPING

Race Group	% Exceed. Amer. Q1 (Actual)	(True)	% Exceed. Amer. Mdn. (Actual)	(True)	% Exceed. Amer. Q3 (Actual)	(True)[21]
ALPHA TESTS						
Italian S. J.	24.50	22.66	7.00	4.95	1.00	.55
Portuguese	22.50	23.88	10.00	6.55	2.00	1.07
Spanish-Mexican	21.50	17.36	6.80	2.81	.75	.20
American Misc.		74.22		47.21		21.19
BETA TESTS						
Italian S. J.	33.40	31.21	18.00	16.11	8.25	6.94
Portuguese	29.00	25.46	13.75	11.51	4.15	4.09
Spanish-Mexican	30.40	27.76	15.50	13.79	6.40	5.59
American Misc.		65.17		42.47		22.06
COMBINED ALPHA AND BETA						
Italian S. J.	27.80		8.50		1.00	
Portuguese	26.00		11.30		3.50	
Spanish-Mexican	21.35		7.25		1.75	

(B) LIKE PERCENTAGE OF AMERICANS EXCEEDING THESE MEASURES IN THE SOUTH EUROPEANS

	Q 1		Mdn.		Q 3	
ALPHA TEST						
Italian S. J.	97.00	95.91	90.00	89.25	72.75	76.73
Portuguese	98.00	95.99	92.00	87.97	76.25	78.81
Spanish-Mexican	98.00	96.33	90.50	90.83	76.25	80.51
BETA TEST						
Italian S. J.	96.75	98.87	86.25	91.15	62.00	66.64
Portuguese	97.75	99.01	89.00	93.19	60.75	74.22
Spanish-Mexican	77.00	99.18	90.00	93.06	66.00	71.23
COMBINED ALPHA AND BETA						
Italian S. J.	98.25		90.00		71.55	
Portuguese	98.75		93.25		71.25	
Spanish-Mexican	98.25		92.25		79.00	

Graphs I, II and III show the overlapping of the actual percentile grades in the several groups, determined graphically.[21] Table XXIX gives the true overlapping determined by the use of Kelley's formula. The first part of this tabulation shows the percentage of each of the three groups, S. J. Italians, Portuguese, and Spanish-Mexican, exceeding the medians, and the upper and lower quartiles of the S. J. American. The Misc. Italians are compared with the S. J. Italians to indicate the likeness of these two groups to each other. The same is done for the Misc. Americans and the

[21] "Actual" overlapping from data at found. "True" camputed using coefficients of reliability of alpha and of beta. The Misc. American group was not used in getting actual data. The "actual" overlapping was determined graphically. Cf: Bowley (14).

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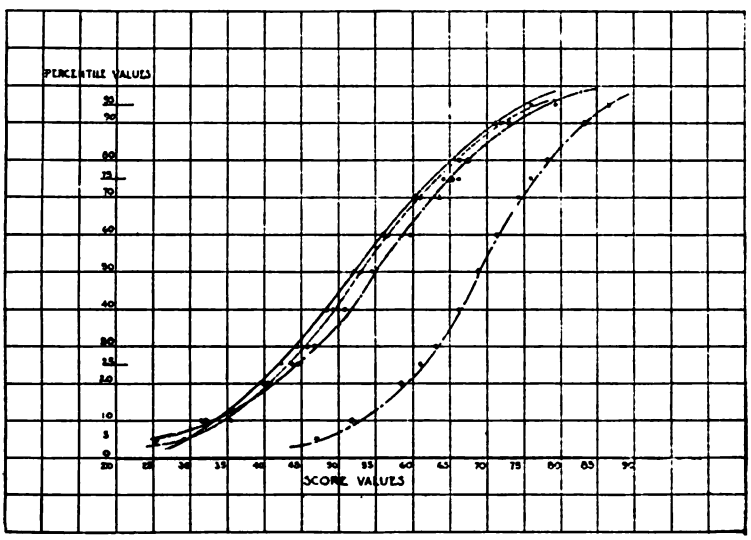
S. J. Americans. It is evident that the true overlapping is less than that revealed by the actual results. Only 23 per cent of the S. J. Italians exceed the lower quartile of the S. J. Americans in alpha, but 24 per cent of the Portuguese and slightly over 17 per cent of the Spanish-Mexicans. The overlapping of the median is between 5 and 6 per cent for the first two groups and but 2.81 per cent for the last. And but 1 per cent of the Italians exceed the point reached and exceeded by the upper 25 per cent of S. J. American children. The Portuguese fare a bit better in this comparison but the Spanish-Mexicans worse.

GRAPH II. CURVE OF OVERLAPPING ON BETA SCORES—Actual Data.



(Legend: as in Graph I)

The overlapping in beta examination, while not nearly so marked as in the case of alpha, is still significant. The S. J. Italian group as elsewhere is nearer the S. J. American group in every case, while the Spanish-Mexicans do a little better with beta than the Portuguese. The differences between the Latin groups is in no case marked. But 16 per cent of the S. J. Italians exceed the median score of the S. J. Americans, and hardly 7 per cent exceed the upper quartile. With the other Latin groups still less favorably situated in reference to the "native" American groups, there can be little question of great differences in mental abilities of the groups.

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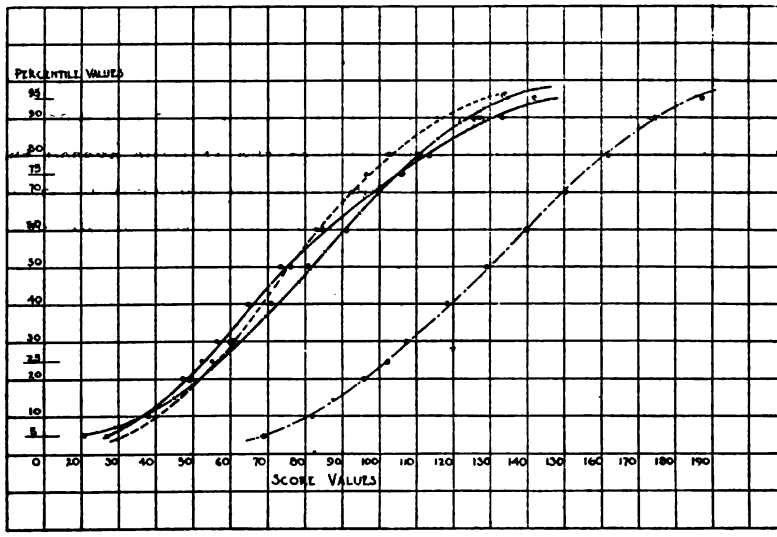
GRAPH III. CURVE OF OVERLAPPING ON COMBINED ALPHA AND BETA SCORES—Actual Data.



(Legend: as in Graph I)

The actual overlapping of the results, using the two tests, alpha and beta, together as one combined rating is practically mid-way between the overlapping in the two separate batteries of tests, but more nearly comparable to that in alpha than in beta.

For comparative purposes the overlapping of the Misc. American group on the S. J. American group is given. The S. J. Americans have a slight advantage but nothing significant. The importance in fact of the nearness of these two groups of Americans is simply to prove that the San Jose children of North European stock are not unlike other "native" American stocks in neighboring California localities. The Misc. Italians compared with the S. J. Italians show that the former are slightly better in the lower half of the scores, but in the beta that the latter have some advantage in the upper ranges of the test results. In the alpha, the S. J. Italians excel their countrymen outside San Jose about as much as the S. J. Americans do the Misc. Americans. In the alpha the S. J. Italians are slightly more variable, but in beta the two groups are very nearly identical. With the Americans the group outside San Jose is a trifle more variable than those from San Jose in alpha and beta both, although the latter group has a somewhat higher C. T.

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E. An Analysis of the Individual Alpha and Beta Tests.

i. The Alpha Tests. No attempt will be made here to analyze the statistical problem of the make-up of the battery of tests that comprise alpha. This has been done elsewhere (73, p. 573ff.). Rather a brief review will be made of the standing of the racial groups in the separate tests, and then a presentation of a profile based on the average performance of each group in each test.

TABLE XXX. THE MEAN AND MEASURES OF DISPERSION OF THE SEPARATE TESTS IN ALPHA AND BETA (Four Principal Samples)

	Alpha	M	SDm	PEm	S D dist	P E dist	% M is of Max. Score	% Zero Scores	Beta	M	SDm	PEm	S D dist	P E dist	% M is of Max. Score	% Zero Scores
AMERICAN S. J.	I	5.45	.14	.09	2.55	1.72	45.41	1.3	I	3.34	.05	.03	.88	.59	68.80	.7
	II	5.80	.15	.10	2.59	1.75	29.00	1.0	II	7.15	.19	.13	3.19	2.15	44.68	1.9
	III	6.45	.16	.11	2.87	1.94	40.31	6.4	III	9.94	.09	.06	1.62	1.09	82.83	0
	IV	7.62	.19	.13	3.39	2.29	19.05	19.1	IV	13.31	.05	.03	.80	.54	44.36	0
	V	6.64	.25	.17	4.45	3.00	27.65	10.5	V	13.42	.05	.03	.89	.60	53.68	.7
	VI	5.65	.18	.12	3.21	2.17	28.25	7.3	VI	12.63	.18	.12	3.12	2.10	63.15	0
	VII	8.46	.08	.05	1.47	.99	21.15	8.6	VII	5.23	.14	.09	2.44	1.65	52.30	1.6
	VIII	12.87	.07	.05	1.21	.72	32.18	1.3								
ITALIAN S. J.	I	2.66	.16	.11	2.26	1.48	22.16	20.9	I	2.73	.09	.06	1.28	.86	54.60	8.8
	II	3.48	.18	.12	2.49	1.68	17.40	11.4	II	5.04	.29	.20	3.87	2.61	31.50	14.1
	III	3.31	.20	.14	2.75	1.85	20.68	22.5	III	8.58	.18	.12	2.43	1.64	71.06	.5
	IV	2.61	.27	.18	3.77	2.54	6.52	48.1	IV	12.05	.18	.12	2.50	1.69	40.16	4.7
	V	3.20	.24	.16	3.28	2.12	13.33	33.5	V	14.23	.34	.23	4.80	3.24	56.92	2.6
	VI	2.74	.19	.13	2.64	1.78	13.70	31.4	VI	8.88	.25	.17	3.42	2.31	44.40	.5
	VII	4.18	.35	.24	4.80	3.24	10.45	30.3	VII	3.08	.16	.11	2.16	1.36	30.80	17.2
	VIII	5.57	.37	.25	5.05	3.41	13.92	19.3								
PORTUGUESE	I	2.39	.27	.18	2.35	1.59	19.91	26.3	I	3.15	.13	.09	1.15	.78	63.00	5.4
	II	2.89	.28	.19	2.41	1.63	14.45	6.6	II	4.73	.36	.24	3.06	2.06	29.56	5.4
	III	2.14	.33	.22	2.79	1.88	13.37	39.4	III	7.91	.33	.15	2.83	1.61	65.91	2.7
	IV	1.82	.41	.28	3.56	1.73	4.50	67.1	IV	10.89	.34	.23	2.90	1.96	36.30	5.4
	V	3.08	.40	.27	3.49	2.35	12.83	32.9	V	13.24	.38	.39	4.96	3.35	52.56	2.7
	VI	3.13	.34	.23	2.87	1.94	15.65	23.6	VI	9.35	.36	.24	3.12	2.10	46.75	2.7
	VII	6.43	.66	.44	5.73	3.86	16.07	34.2	VII	2.92	.23	.15	1.94	1.31	29.20	12.1
	VIII	6.01	.63	.42	5.47	3.69	15.02	17.1								
SPANISH-MEXICAN	I	2.45	.27	.18	1.93	1.30	20.31	21.5	I	3.04	.15	.10	1.06	.71	60.80	1.9
	II	2.78	.29	.19	2.05	1.38	13.90	13.7	II	5.89	.43	.29	3.15	2.12	36.81	3.8
	III	2.92	.31	.21	2.23	1.50	18.25	29.4	III	8.42	.32	.22	2.33	1.57	70.16	1.9
	IV	2.45	.51	.34	3.64	2.46	6.12	58.8	IV	11.07	.32	.22	2.34	1.58	36.90	3.8
	V	2.94	.47	.32	3.35	2.26	12.25	41.1	V	12.28	.66	.45	4.84	3.26	49.12	3.8
	VI	3.20	.37	.25	2.64	1.78	16.00	19.6	VI	10.72	.54	.36	3.84	2.59	53.60	0
	VII	3.75	.71	.48	5.04	3.40	9.37	41.1	VII	2.83	.30	.20	2.18	1.47	28.30	13.2
	VIII	5.33	.63	.43	4.52	3.05	13.32	17.6								

Table XXX summarizes the principal data on the averages and measures of dispersion for the individual tests in the four principal groups.[22] There are given the means of each test, with the S. D. and P. E. of the means (as an indication of their reliability), and also the S. D. and P.E. of the distribution of scores in each test. The S. J. American group did decidedly better throughout the entire eight tests. Tests IV and V proved particularly difficult for the Latin groups. The S. D.'s for each of the

[22] The Misc. American and Misc. Italian groups are so nearly like the larger samples of these same racial groups that they are omitted here.

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Latin groups indicate that the spread of the test results downward ran apparently to negative scores. The facts are these: Column 8 of the table gives the percentage of zero scores in each test. It is seen at a glance that the amount of zero grades is very high for these two tests for all the Latin groups. In computing the means, and measures of dispersion, zero scores are counted as a class in the arrays, and hence are actually considered as units on the scale. As is pointed out in the treatise on the statistical interpretation of the army data on alpha and beta (73, p. 622):

> The alpha examination itself is not a homogeneous scale, but a composite of eight short scales, each much more nearly homogeneous than the composite total alpha. . . . Certain of its component tests are very much more difficult than others, so that examinees of less than average intelligence do not in general register their ability in all of the tests. . . . [Since the time allowed is constant for all, some fail to score at all in certain tests, whereas more time might give them a small score] . . . It follows from what has just been stated that subjects who are able to score in all of the alpha tests obtain total scores that are not comparable with the total scores earned by individuals who failed in some of the tests. The reason for this difference is that in obtaining an individual's total score by adding together the scores in each test, scores of 0 are treated arithmetically the same as other scores. There are psychological reasons, however, why 0 as a score cannot be regarded as a point on a linear scale, although other scores can be so regarded. This distinction between the mathematical zero and "psychological" zero is an important one, for failure to recognize it is a serious pitfall in the statistical analysis of psychological data. Zero as a test score means some unmeasured amount of ability that is less than the amount required to earn a score of one point. Thus, if a high degree of ability is necessary to earn a score of one point in a certain test, it is obvious that the range of ability covered by the zero scores is a very wide one, although the ranges corresponding to scores of one point, two points, etc., may be very short. *A score of zero therefore does not mean no ability at all;* it does not mean the point of discontinuance of the thing measured; it means the point of discontinuance of the instrument of measurement,—the test.

It may be said, then, had the alpha test been more adequate for the testing of mentality of unselected 12-year-old children, even of Latin stock, the total scores would have been correspondingly higher, since the percentage of zero scores in tests IV and V, had they been easier, *i. e.*, more adequate to the mentality of the groups, would have been relatively less.

It may be imagined at first glance that since these two tests are particularly language tests, the Latin groups were greatly handicapped by them. While this may be so, in part, the fact that nearly 20 per cent of the Americans scored zero on test IV and over 10 per cent, zero on test V, points to the alternative explanation, that the test is really too difficult for the 12-year-olds, even of normal intelligence.[22] Test VII, which also gave a con-

[22] Tests IV, V, VI proved too difficult (as measured by percentage of zero grades) for the draftees and enlisted men in the army. Cf: 73, pt. III: Ch. 2: 624, 626.

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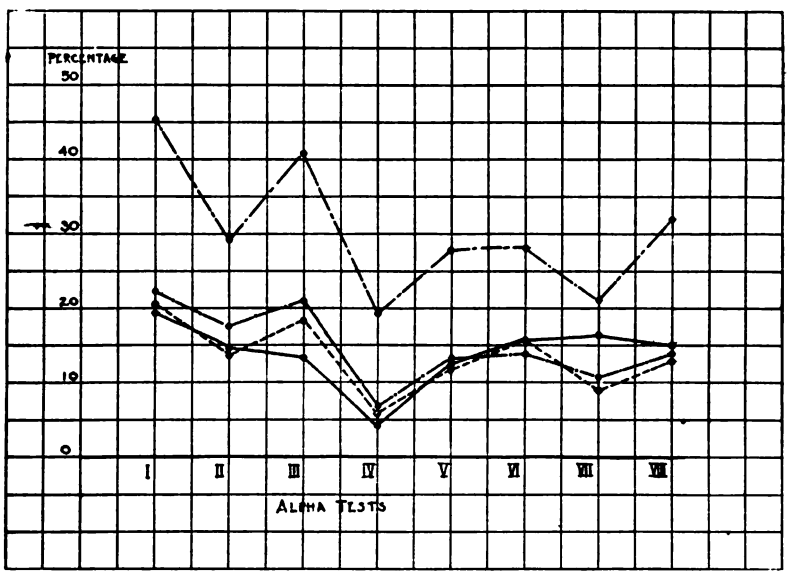
siderable percentage of zero scores for the groups, is likewise a language test but the Latins did better with it because it permits of differential making of scores by the pupils. In short, however, the penalization of the total score for the Latins as compared to the non-Latins was a matter of relative degree. We may take it that this relative degree is expressed in terms of the difference in the intelligence quotients of the two groups.

In regard, then, to the S. D.'s of the distributions in tests IV, V and VII, it is clear that they are larger than the means simply because their dispersion is represented by a particular portion of the zero scores at the lower end of the scale. For the Spanish-Mexican group, test VI also proved considerably too difficult. In this case, language explanation apparently did not enter in, for the other Latins did decidedly better in VI. It must have been a lack of capacity.

GRAPH IV. PROFILES SHOWING THE PERCENTAGE WHICH THE MEAN OF EACH TEST IS OF THE MAXIMUM POSSIBLE SCORE IN EACH TEST FOR ALPHA



(Legend as in Graph I)

To show the relation of the groups to each other in each test, the percentage that the mean of a given test is of the total maximum score possible of that test was computed throughout the eight tests. These figures are given in Table XXX, and are pre-

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sented graphically (Graph IV). Observation of these curves reveals certain features in the performance in the test that may be thought typical. As has been observed already, the three Latin samples keep nearly parallel to each other everywhere, in test results and grade location. One of the outstanding aspects of these curves is their general similarity in contour. They rise and fall together in almost every instance. The one exception appears to be with the Portuguese in test VII where they out-distance the other South Europeans somewhat noticeably. The only explanation for this is the possible clue that in the Portuguese group were a few individuals who ran far beyond the average of the group in the alpha test.[24] Had the sample in this case been larger, this exception might be wiped out by the existence of relatively more cases in the lower ranges.

In test I, dependent on language only for the bare directions, the Latins did best of all, yet so did the Americans. In test II (arithmetical reasoning), test III (common sense judgments), and test VI (series completion), the Latins did not do particularly better, relatively, than they did in the tests more obviously dependent on mastery of language. One must keep in mind the fluctuation of the curve for the American group, where the alleged language difficulty does not exist, in order to generalize about asserted linguistic handicaps for the Latins. As noted above, in test IV both Latins and non-Latins fall down. In test V they are comparatively in much the same position with the total sweep of their curves. In test VII it would actually seem that the American group did relatively poorer compared to their total showing than the Latins.

Tables XXXI, XXXII and XXXIII summarize the principal data on the differences in the means of the tests, the differences in percentages of the maximum possible scores for the individual tests and so the differences in the percentages of zero scores for the four groups. In no case is the P. E. of the differences of the means large enough to warrant any other conclusion than that the differences are true differences, and the existence in two or three tests of high percentages of zero scores is after all relative to the groups tested in large part. The array of differences in percentages that the means are of the maximum scores simply states what is pictured in Graph IV. The differences in the percentage

[24] Cf: Table VII for distribution of Portuguese. There were five of these pupils with alpha total scores of 99, 93, 89, 84 and 80. Of these, 22, 10, 15, 27 and 17 per cent respectively of the total score came from the score in test VII.

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of zero scores shows the inadequacy of the test to differentiate at the lower levels of mental ability. The significant thing, then, is that the percentages of zero scores, like the differences in means, either of total or of individual tests, is relative to the mental capacity of the groups in question. While the alpha test did prove at fault in the matter of differentation in the lower ranges, it was a fault that applied equally to all the samples concerned. The average difference in the amount of percentage of zero scores is itself a rough measure of the differences in the mental capacity of the groups.

TABLE XXXI. DIFFERENCES IN THE MEANS OF EACH SEPARATE TEST WITH P. E.'s OF THE DIFFERENCES IN MEANS

ALPHA TESTS

Difference in Means—	I	II	III	IV	V	VI	VII	VIII
American S. J. and Italian S. J.	2.79	2.32	3.14	5.01	3.44	2.91	4.28	7.30
P. E. difference	.14	.15	.17	.24	.22	.17	.25	.26
American S. J. and Portuguese	3.06	2.91	4.31	5.80	3.56	2.56	2.03	6.86
P. E. difference	.20	.22	.25	.22	.32	.26	.44	.42
American S. J. and Span.-Mex.	3.00	3.02	3.53	5.17	3.70	2.45	4.71	7.54
P. E. difference	.20	.21	.24	.17	.17	.28	.48	.44

BETA TESTS

Difference in Means—	I	II	III	IV	V	VI	VII
American S. J. and Italian S. J.	.61	2.11	1.41	1.26	.81*	3.75	2.15
P. E. difference	.07	.24	.42	.13	.24	.21	.14
American S. J. and Portuguese	.18	2.42	2.03	2.42	.18	3.28	2.31
P. E. difference	.10	.27	.16	.23	.39	.27	.17
American S. J. and Span.-Mex.	.30	1.26	1.52	2.24	1.14	1.91	2.40
P. E. difference	.10	.32	.23	.22	.45	.38	.22

* The S. J. Italians exceeded the S. J. Americans in this test. All other cases show Americans exceeding the Latins.

TABLE XXXII. DIFFERENCES IN PERCENTAGE THE MEAN OF EACH SEPARATE TEST IS OF THE MAXIMUM SCORE SCORE POSSIBLE IN EACH TEST

ALPHA TESTS*

Difference in %—	I	II	III	IV	V	VI	VII	VIII
American S. J. and Italian S. J.	23.25	11.60	19.63	12.53	14.32	14.55	10.70	18.26
American S. J. and Portuguese	25.50	14.55	26.94	14.55	14.82	12.60	5.08	17.16
American S. J. and Span.-Mex.	25.10	15.10	22.06	12.93	15.40	12.25	11.78	18.86

BETA TESTS

Difference in %—	I	II	III	IV	V	VI	VII
American S. J. and Italian S. J.	14.20	13.18	11.77	4.20	3.24†	18.75	22.50
American S. J. and Portuguese	5.80	15.12	16.92	8.06	1.12	16.40	23.10
American S. J. and Span.-Mex.	8.00	7.87	12.67	7.46	4.56	9.55	24.00

* The American S. J. exceed all groups in alpha by these differences.
† In beta V, the Italian S. J. exceed the Americans.

TABLE XXXIII. DIFFERENCES IN THE PERCENTAGE OF ZERO SCORES IN EACH SEPARATE TEST

ALPHA TESTS

Difference in %—	I	II	III	IV	V	VI	VII	VIII
American S. J. and Italian S. J.	19.60	10.40	16.10	29.00	23.00	24.10	23.70	18.00
American S. J. and Portuguese	25.00	5.60	33.00	48.00	24.40	16.30	25.60	15.80
American S. J. and Span.-Mex.	20.20	12.70	23.00	39.70	30.60	12.30	32.50	14.50

BETA TESTS

Difference in %—	I	II	III	IV	V	VI	VII
American S. J. and Italian S. J.	8.10	12.20	.50	4.70	1.90	.50	15.00
American S. J. and Portuguese	4.70	3.50	2.70	5.40	2.00	2.70	10.60
American S. J. and Span.-Mex.	1.20	1.90	1.90	3.80	3.10	.00	11.00

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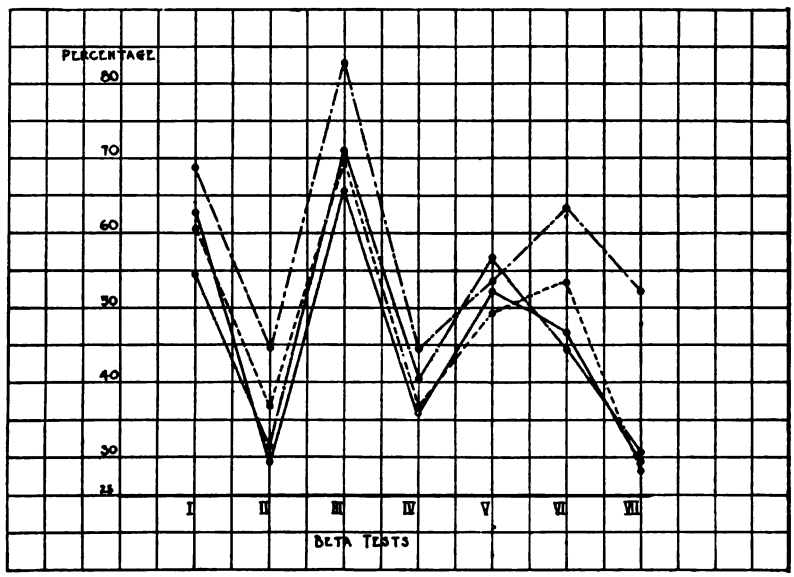
ii. The Beta Tests. Tables XXX to XXXIII and Graph V show the same facts for the separate tests in beta as for the alpha. The means for the separate tests, with the S. D. and P. E. of the means, and also the S. D. and P. E. of the distributions are given. It is apparent at once, as it was for the averages and dispersions of the total beta, that the groups are much nearer together in their performance in these tests than in the alpha.

GRAPH V. PROFILES SHOWING THE PERCENTAGE WHICH THE MEAN OF EACH TEST IS OF THE MAXIMUM POSSIBLE SCORE IN EACH TEST FOR BETA



(Legend as in Graph I)

The percentage of zero scores is negligible except in the case of test VII for all Latins, and also test II for the Italians. In tests III, IV and VI the Americans had no zero scores whatsoever. The other tests yielded low percentages throughout. In the case of test II for S. J. Italians, no special explanation is available. It is unlikely that the Italian group is deficient in the abilities needed in cube analysis when compared to other Latins. Anyway, in terms of the mean for test II they exceed the Portuguese and are only slightly lower than the Spanish-Mexicans, hence in the percentage of the maximum score in test II reached by the mean, the matter of the percentage of zero scores is wiped out. Were the

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percentage of zeros not so high, of course, the mean itself would be greater.

In test VII the matter appears really one of the difficulty of the test, for all the Latins have a considerable percentage of zero scores, with the Italians exceeding the other two groups. Geometrical construction (test VII) may involve for the 12-year-old South European child difficulties beyond his innate capacities.

Graph V pictures the relative standing in the separate tests in terms of the ratio of the mean in each test for each group to the maximum score possible for that test. While the Americans do not outstrip the Latins so extensively as in alpha, they maintain their superiority in each test, with one exception. For the Italians in test V (number checking) the mean is slightly greater than it is for the Americans. In tests II, III, VI and VII the Americans exceed the Latins more than in I and IV. In V the former only slightly surpass the Portuguese and Spanish-Mexicans. It is interesting that even in test II (X-O series) which is probably the easiest test of the entire set, which permits of unwarranted attainment of a score (through chance making of cross and circles without comprehending *why*) and is facilitated by rapid motor activity, the non-Latins increase their lead over their fellows. In tests IV and V, which are decidedly perceptual tests, the Latins earn more comparable scores with the non-Latins. Test VI (picture completion) is a type used in numerous performance scales and appears to have a high reliability and to differentiate among mental abilities very well. Comment on test VII has already been noted. On the whole, with beta the general rise and fall of the curves for the various groups parallel each other. Once more one is forced to conclude that the differences are those of relative standing, or degree, not in any instance differences of "kind."

Tables XXXI to XXXIII present the differences in the percentages of the maximum scores reached by the means, and the actual differences in the means with the P. E.'s, and also the differences in the percentages of zero scores. The differences in the means are true pictures of the facts as indicated by the relative size of the P. E.'s. In other words, another sampling might show that the second group mean would exceed the first. This is particularly true of the differences in the means of the Americans and the Italians and the former and the Portuguese.

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F. Conclusions to Part 2.

A survey of the various methods of measuring the differences in the mental ability of the foreign population of a school system and comparing the same to the school population that is "native" American, in the sense that its ancestry were the early settlers in this country, shows some tremendous differences. In grade location the Latin stocks are nearly two grades on the average below those of the non-Latins; teachers' ratings of the general intelligence of these groups show that the former lie on the average one-seventh of the total range of the scale below the latter. Nearly the same results are present when the actual measures of school success are given. It must be rigorously held in mind that the children compared are *all of the same chronological age.*

So too with the results of mental tests applied to the children. In the alpha the differences are very marked. In beta, while they are not nearly so great, they are still significant. The query arises why the beta differences are not so noteworthy as the differences in alpha. Is it not true that the language handicap is after all the pertinent explanation here? And if it is not so, why does not the beta difference show itself to be greater than it is? In reply one may raise other questions: Do alpha and beta test similar mental functions? Are they really comparable measures of innate mental ability? Or are there features in the tests themselves that may, at least in part, explain the problem raised in the question above about the wide divergence in alpha and the much less amount in beta?

Before going into an attempted answer to these questions, it will be necessary to see what the correlations of the various measures among themselves may show as to possible cues in the interpretation.

3. Correlations

The bare results of correlations will be presented here, the significant comment on the findings being reserved for the final section of the chapter. It must, however, be noted that two assumptions are held as valid: first, that the degree of correlation between the alpha,—the verbal test, and beta,—the performance test, will reveal the extent to which they are testing, if not identical, at least very comparable mental processes; second, that teachers' estimates of general intelligence and of school work, coupled with the grade

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location and possibly parents' economic status serve as legitimate checks upon the mental measurements, for if the latter are valuable for diagnosis and prediction, they must show some relation to already known criteria of success.

A. Correlations of Alpha Against Beta.

Table XXXIV presents the correlations [35] of the various criteria with the tests. The correlation between alpha and beta is high. The S. J. Americans and the Misc. Americans have a correlation coefficient of nearly .62. The corresponding correlations for the Latins range between .58 for the Misc. Italians, which is a rather small sample with a somewhat larger P. E. than the other groups, to .79 for the Portuguese. The S. J. Italians give an r of .67 while the Spanish-Mexican group is slightly lower, .73. The P.E.'s of all these groups is significantly small, indicating high reliability of the samples employed. All Latins grouped together give a correlation of alpha against beta of .736 P. E. .016.

TABLE XXXIV. CORRELATIONS BETWEEN VARIOUS TESTS AND OTHER CRITERIA COLLECTED ON RACE GROUPS (Pearson r formula)
(All correlations are positive)

Race Group	r with Beta	r with T.E.Int.†	r with T.E.Schw.	r with Grades	r with Taussig	r with Barr.
Amer. S.J.						
A	.615*.024	.698 .019	.607 .024	.762 .016	.215 .036	.388 .032
B		.498 .029	.413 .032	.543 .027	.221 .034	.238 .036
Comb. A and B		.670 .021	.574 .025	.742 .017	.316 .035	.356 .034
Ital. S.J.						
A	.671 .022	.674 .027	.511 .036	.779 .018	.405 .041	.309 .044
B		.533 .035	.428 .039	.751 .022	.336 .043	.175 .047
Comb. A and B		.687 .025	.558 .034	.815 .016	.405 .041	.311 .044
Port.						
A	.788 .029	.487 .058	.398 .064	.812 .026	.354 .067	.224 .073
B		.670 .040	.455 .061	.705 .038	.175 .075	.192 .075
Comb. A and B		.706 .038	.461 .061	.799 .028	.311 .070	.286 .072
Span.-Mex.						
A	.726 .044	.563 .065	.384 .081	.773 .038	.449 .076	.212 .090
B		.596 .059	.404 .077	.813 .033	.436 .075	.227 .088
Comb. A and B		.587 .061	.436 .076	.842 .027	.414 .079	.241 .088
Ital. Misc.						
A	.582 .065	.652 .050	.554 .062	.673 .049	.223 .086	.269 .083
B		.481 .070	.354 .080	.649 .051	.422 .076	.308 .082
Comb. A and B		.638 .048	.461 .072	.750 .040	.497 .070	.319 .082
Amer. Misc.						
A	.618 .045	.644 .042	.542 .051	.752 .031	.225 .068	.168 .069
B		.590 .047	.525 .052	.605 .045	.411 .076	.354 .064
Comb. A and B		.634 .039	.584 .049	.772 .030	.259 .067	.284 .067

* The second figure in each case is the P. E.
† T.E. means Teachers' Estimates.

There is reason to believe, then, that the alpha and beta, while not exactly comparable, are fairly so, and that they are tapping much the same mental processes. The lower correlation for the American groups is due to the fact that the beta, as has been noted,

[35] All correlations were computed by the Pearson Product Moment Method, using the short method of Rugg. The correlations are always plus unless otherwise stated.

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does not differentiate their abilities in the upper ranges and hence the range of scores is much more narrow than a test adequate to their abilities would be. In the army testing, alpha against beta gave an r of .811, P. E. of .009, with 653 cases of English-speaking men from nine camps (73, p. 392). This group was less selected for intelligence probably than the group of 12-year-old school children of older American stock.

The outstanding fact, of course, is the high correlation of alpha and beta in the case of the Latin groups, indicating that much the same mental functions are involved throughout, and shows the verbal test *is* diagnostic of their ability.

B. Correlations of Alpha, Beta, and Combined Alpha and Beta with Outside Criteria.

i. Teachers' Estimates. Using the mean of two ratings[36] on the children for general intelligence and for quality of school work, the correlations of each against alpha, against beta and against the combined alpha and beta total scores were computed. (Cf: Table XXXIV.) The range of correlations of alpha with intelligence ratings is from .50 to .70. The Portuguese and Spanish lying near the former figure, while the other groups are close to the latter. These correlations may be considered particularly high, as such correlations run (73, Pt. II, Ch. 11).

The correlations of beta with estimates of intelligence show fluctuations in the groups that the alpha do not. With both American groups the correlation runs between .50 and .60, while with the Spanish-Mexicans and Portuguese they run between .60 and .70. There may be a qualitative set of factors accounting for this better showing of beta than alpha with the latter.[37] Nevertheless these correlations of the performance scale with the estimated intelligence are significantly high. On the whole they are as high for beta as for alpha.

The combined alpha and beta correlations with rating of intelligence come under the same range of coefficients as the separate batteries.

With school work there are several factors to be taken into account. While mastery of school subjects is basically dependent

[36] The r of the first rating on intelligence against the second equals .797; first rating on school work against second, r equals .807. This indicates in another way the reliability of the ratings.

[37] The beta throughout shows up better with the Portuguese and Spanish-Mexican groups than alpha. This appears rather due to their low intelligence than to alleged language difficulties.

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on general intelligence, the grading system in terms of mental age is so unsatisfactory that the children are not where their abilities would really place them. If the children were all properly placed according to their mental age, then the correlation of mental test with grade location would be practically perfect; at the same time, the correlation with teachers' estimates of school work would be zero, assuming the child was doing his maximum work. That is, the child of given mental age would be put in the proper class and could only be justly rated as "average." That, of course, would mean no correlation with mental tests in terms of variables. Of course, in a practical situation even with grading on a mental age scale, the school work of pupils would differ somewhat in quality, and hence estimates from teachers of such classes could be put on a scale of short range at least, which would produce some slight correlation. It is because the children are less adequately placed in the school system in terms of their mental ages that the correlations of the tests with quality of school work are as high as they are.

This last fact, coupled with the disposition of the teachers to over-rate the foreign children generally, adds to the cause of the present correlations. Moreover, success in school work is not entirely a matter of intelligence. So-called non-intellectual traits enter into the pupils' success.

The American children are often penalized at the opposite end of the scale than the Latins. They are found in grades too easy for them, and there is a disposition for greater displacement up or down the scale than with the Latins. This may serve to increase the correlations of the American groups in alpha against quality of school work. While the tendency for the teachers is to rate the quality of school work of the retarded Latin's average with his class, the American who is advanced for his chronological age will be rated lower than average (though as a matter of fact his school work is probably average in his grade). Such a displacement would produce a higher correlation of the test against quality of school work for this group than for the Latins who would be closely grouped around the "average" point on the scale, hence lowering their correlations.

In the beta the correlations of all groups are much more uniform. The lowering of the correlations of the American group to the level of the Latins is likely due to the shorter range of the beta for them, which would offset, for instance, the spread of the

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ratings on the seven-fold scale of the teachers' ratings. With the Portuguese the beta correlation is higher than the corresponding alpha. The sample is small and the P. E.'s indicate that the difference is not great since other such samples might fluctuate between the two coefficients, for either alpha or beta against school work. The general range of correlations for school work is from nearly .40 to slightly over .50. These are not high but are large enough to indicate the relation between present schemes of rating quality of school work and the mental tests. It must not be forgotten, as we just pointed out, that such correlations are really reflections on the inadequacy of the system of co-ordinating native abilities to opportunity for school progress, plus the influence of non-intellectual traits on school success.

The combined scales correlated with the school work will naturally smooth out the discrepancies between the results in the two tests. (Note the run of correlations in the accompanying table for the combined scores.) It must be remembered that the mere addition of a number of new tests to a battery tends in itself to raise the correlation, although the diagnostic value of the same may not be particularly enhanced. However, the results of the present study would indicate that the combination of alpha and beta gives a better diagnosis as measured against outside criteria than either. The verbal test alpha, nevertheless, is the most significant half of the combined test.[28]

ii. Grade Location. In all likelihood there is no outside criterion so objective as the grade location of the children at the time of testing. While even grading is somewhat subjective, it is a measure of the child's individual capacity and is relatively free from personal bias. In the long run the ordinary child finds his grade-level. The exceptions to this are rather the children of superior rather than inferior ability (111) who are held back with those not equal to them in native capacity. But with the average child and those slightly below average their grade location is a fair measure of their successful adjustment to the school program. In fact, it is the problem of discovering the reasons for the present grade location of large numbers of the children of foreign parentage that this study was undertaken. Table XXXIV shows that with one exception the alpha test gives higher correla-

[28] The combined alpha and beta is not an adequate group test for diagnostic purposes in schools. A test made up of items both verbal and non-verbal might be devised which would be better for practical purposes than either alone.

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tions with grade location than the beta, and this exception, that of the Spanish-Mexican groups,—beta vs. grade location,—the difference is negligible, being well within the limits of the P. E. of either correlation. So even here, beta does not correlate markedly higher with grade status than does alpha.

The r of alpha against grade location ranges from .67 to .81. It is instructive that the correlations are somewhat higher for the Latins than for the Americans. The range of correlations of beta against grade location is from .54 to .81. Here, as with correlation of beta and teachers' estimates, the S. J. American group, especially, shows up poorly. It is increasingly evident that beta is less adequate for diagnosis for the non-Latin group than alpha. The difference in diagnostic value between the verbal test and the performance for the Latins, while present, is not so marked. The beta in the case of Spanish-Mexicans shows some superiority over alpha but not a significant one.

Combined alpha and beta against grade location gives higher correlations than either alone with the Latins, while for the Americans the inclusion of the homogeneous beta group lowers the correlation when it is compared to that of the alpha alone against grade. This is more true with the S. J. group than the Misc. Americans.

Pooling all the Latin groups together for a correlation of alpha against grade location, r equals .80, P. E. .012. For beta r equals .708, P. E. .014. The superiority of alpha over beta in correlation with the outside criterion, grade location, is noteworthy.

Table XXXV presents an array of correlation coefficients of the separate tests in alpha and in beta against the grade location. It was hoped that this might show which tests were operating to produce the correlation of the total batteries against grade position. Only the four principal samples were used.

The alpha section against grade location discloses the fact that tests II, III, IV, VII and VIII yield high results. The exact reliability of these individual tests is not known, yet assuming it to be high, as one may,[*] it is interesting that in the tests which approach the perceptual, like the first, and the arithmetic reasoning and common-sense which are not greatly dependent on language, the Italian and Portuguese do somewhat better as measured by these correlations. One might say, of the total eight tests, tests I,

[*] From the fact that the reliability of the entire test is high and from the fact that tests of the same general types have always yielded high reliability coefficients.

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II and III would serve as indicative of their ability, perhaps, if it is measured by such a relationship, better than the other four or five tests. Test VIII (Information) however, while pretty much dependent on reading and conversation, yields a high correlation for the Latin groups. The analysis of the percentage of zero scores in tests IV, V and VI , on the other hand, offers a cue that the reason for the low correlation in these tests is the high proportion of zero scores, which shortens the range and makes the group more homogeneous and the test less differentiating. A better test, of like nature, more commensurate with the native ability of such groups, would give a more adequate picture of the differences.

TABLE XXXV. CORRELATIONS OF INDIVIDUAL ALPHA AND BETA TESTS AGAINST GRADE LOCATION (4 Principal Samples)

	INDIVIDUAL TESTS															
Alpha	I		II		III		IV		V		VI		VII		VIII	
Amer. S.J...	.534*	.027	.626	.023	.668	.021	.607	.024	.508	.028	.553	.027	.564	.026	.661	.020
Ital. S.J.....	.652	.028	.630	.029	.681	.026	.463	.039	.553	.034	.535	.035	.605	.031	.656	.027
Port.	.657	.043	.658	.043	.691	.039	.483	.059	.539	.054	.684	.042	.636	.046	.718	.037
Sp.-Mex.	.708	.047	.673	.052	.589	.061	.511	.069	.479	.072	.681	.051	.625	.057	.716	.047
Beta																
Amer. S. J...	.200	.027	.173	.037	.320	.034	.345	.033	.470	.030	.290	.035	.281	.035		
Ital. S. J. ..	.503	.036	.302	.044	.534	.035	.585	.032	.588	.032	.514	.036	.457	.038		
Port.	.362	.068	.248	.073	.580	.052	.657	.044	.636	.046	.298	.071	.299	.071		
Sp.-Mex.	.461	.073	.466	.072	.551	.064	.673	.051	.648	.052	.606	.058	.502	.069		

*The second figure in each case is the P. E.

It is striking in view of the objections sometimes raised against verbal tests for the immigrants and lower social levels of population that tests VII and VIII give such high correlations. Therefore, altogether, were tests IV and V more fitted to the capacities of the 12-year-olds generally, Latin and non-Latin, the usual language factor as a hindrance to success in them could not legitimately be put forward. The experience with verbal tests arranged especially for school children proves this fact.[30]

[30] Pintner and Patterson (81) and others interested in performance scales maintain that verbal tests are unjust to many children and adults. The writer of the present monograph does not believe the verbal tests so unjust, except to certain sub-normals and to non-English speaking immigrants who have recently arrived in this country. Up to the present the performance tests have failed to provide such items as tap the "higher thought processes." On the other hand, studies of Terman and his students on the importance of vocabulary tests in diagnosing general intelligence and the high correlation of completion tests with outside measures, indicate lack of capacity, not handicap of language, as the factor in the difficulty. For instance, those who strenuously object to "language" tests for immigrants often forget the important fact that the majority of these immigrants have no grasp on their native tongue. They would be quite as much at a loss if the verbal tests were couched in their language.

More important than verbal or non-verbal tests, is the proper inclusion of such content in any tests as probe the true ability of the persons tested. More injustice is done the non-English speaking immigrants when the tasks before them are put into forms and experiences of which they know not due to difference in cultural background.

Recently Pintner and Keller (82) have compared the results of the Pintner Non-Language test with the Binet and discovered that for kindergarten, first and second grade children at least, the Binet tests do not give as favorable an I. Q. or mental age as the non-verbal test. The reliability of the non-verbal test is not given, nor its

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The correlations of individual beta tests against grade location disclose lower coefficients throughout than the alpha. Since the correlations of beta total score against grade location is lower than the alpha, except in one case—Spanish-Mexican— and there the difference was not great, it is to be expected that the correlations of the individual tests with outside criteria would be lower. With the Americans, other things like reliability and length of range being equal,[31] tests I and II are decidedly too easy for the Americans, test VII only fairly so. With the Italian and Spanish-Mexican groups these tests are much better single measures. Tests IV and V seem from these correlations, at least, to be the most reliable individual measures for the American group.

Reference has already been made to the fact that the beta test appears on all sides to be slightly more favorable for measuring the Spanish-Mexicans. The evidence here corroborates this belief again. In all cases the correlations are rather better than with either of the other groups, Latins or the Americans.

It must not be forgotten that the evidence from these few samples of separate correlations do not always reveal the adequacy of the single tests. Extended inter-correlations and correlations of individual tests with other outside criteria, correction for length of range in each test, etc., would have to be made. The interest in this study lies more in the fact that these composite batteries of mental tests do prove adequate measures of native ability when compared to the best outside standards of judgment that can be found. Their results, however, are by no means absolute. The results can not rise above their source.

iii. Social-Economic Standing of the Parents. The Taussig scale which was used to classify the parents' occupations has already been mentioned. One set of correlations (cf: Table XXXIV) is based on this scale. A second scale of grading occu-

correlation with the school standing of the children, its correlation for both foreign and native children with Binet is low, and further the number of cases was small. Moreover, in the material presented in the present thesis, the age group was advanced over Pintner's and the children's families were likely of longer standing in this country. It is difficult to measure the extent of the home influence on the language.

It must not be forgotten that in school procedure what is desired is predictability of performance with school materials. It is yet to be shown that the group performance tests so frequently invented serve as well as Binet or other partially verbal tests for the diagnostic purposes of school practice. The writer does not wish to be dogmatic but he does hold that his results have got at the problem in a fairly significant way. Cf: (18).

[31] Carl C. Brown gives the length of range for the various beta tests as determined in the army: Test I has a range of 1.2 S.D.; II has 2.6 S.D.; III has "nearly unlimited range"; IV has 2 S.D.; V, 2 S.D.; VI, "nearly unlimited"; VII, 1.5 S.D. These figures were taken from a sample of 672 cases of enlisted men. The fact that the American 12-year-olds did so well in several of the beta tests indicates that its length of range and its difficulty should be increased.

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pations was used, that of Barr, who devised a scale from the composite judgments of twenty persons as to the amount of general intelligence necessary for success in a list of 121 occupations.[22] This composite judgment by rank-order was worked over into a frequency curve and a P. E. value was assigned to each occupation on a basal range of 4.6 P. E. Then those occupations lying contiguous on this scale of P. E.'s were thrown together into fourteen classes for the entire scale. While there are some obvious difficulties in the method of devising, the scale is better than any individual judgment of vocations.

The table reveals considerable fluctuation within the groups. On the whole alpha correlates more highly with the occupation scales than beta, but the tendency is not constant throughout. Note the Misc. Italians, Misc. Americans, especially. Also it is not evident from these correlations which of the two classifications is the better for these groups. The beta with Barr scale gives on the whole low correlations with such large P. E.'s as to be of little value, and the writer desists from any attempted explanation of these facts beyond the vague, general one, that the immigrant groups have not yet found their levels of occupation commensurate with their native abilities, and that the Americans, while giving somewhat higher correlations, may also be said to be classified on other strata than those of intelligence alone, and finally the inadequacy of the scale itself. There are so many factors entering into one's economic situation,—ambitions, interests, attitudes toward the unscrupulous accumulation of wealth, inheritance of unearned increments, and so on,—these obscure the place that general mental capacity plays in selection and success in vocations.[23]

On the whole, in spite of limitations of sampling and inadequacy of the scales, mental and occupational, some correlation is discovered. If alpha be assumed a better qualified test of innate ability

[22] While Barr doubtless had a fertile idea in his thesis, his group of judges (college professors, graduate students, and a few others) was too homogeneous in interests and experience. His sample of opinions, in other words, was too narrow. If he had included business men, industrial managers, industrial engineers, foremen, and even skilled workmen themselves among his judges, the scale would have been more valuable. Of course there remains the further difficulty:: There are no standardised categories for the various occupations. For instance, take nursing; while nurses are rated high by Barr's judges, evidently thinking of graduate, well-trained persons, in actual practice many women rate the title "nurse" who never had a day of hospital training. The writer came across such cases. So too with "carpenter,"—this trade runs from the high-grade skill demanded for indoor finishing and cabinet-making to rough "wood-butchers." The former likely possess, on the average, a good deal more mental ability than the latter. There is also the question of specific skills and ability.

[23] There is a real need for an extended survey of: (1) the mental ability in the various occupational levels of our population; (2) the existence of special aptitudes for different occupations; (3) the place economic and educational opportunity have in the selection and success; and (4) the place non-intellectual traits may have in selection and success.

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than beta, its correlations with the Taussig scale in the case of the Portuguese and Spanish-Mexicans and with the Barr in the case of the Americans might be used as a basis for holding that these groups are roughly segregated into economic levels according to their mental abilities, that is if we may assume further that the intelligence level of the parents is highly or perfectly correlated with that of the children as shown in the alpha.[34]

In conclusion of this section, we may say that the correlations of alpha versus beta show that, in the main, these two tests are comparable. The high correlation of the Latin alpha with the outside criteria, especially grade location, is the second most significant feature. For our purpose, the indication that the alpha test does not do injustice to the Latin groups, as measured by these correlations, is important. The problem of the alleged language handicap must, therefore, be interpreted in the light not only of the measures of central tendency and dispersion in these tests, but also in view of the correlational material.

4. Interpretations and Discussion of Data

First of all, are the alpha and beta comparable tests? This question has been partially answered above. While the correlation of alpha and beta together gives a high coefficient, it is not high enough for these groups to warrant saying that it approaches perfect correspondence. It is not so high, at least for Americans, as the correlations between alpha and beta uncovered in the army experience. Nevertheless, the uniformly high correlations of the verbal alpha against the non-verbal, beta, indicates that the alleged language handicap is not present to the extent imagined by the teachers and school officials.

Two difficulties with the tests used must be noted to get the proper perspective. Alpha, while proving very good for differentiation of the American groups as a whole, was too difficult for those Latin 12-year-olds who were mentally retarded. While much has been written about the verbal test as involving mere linguistic fluency, I take it sufficient proof to the contrary has been offered in experimental literature to overthrow these opinions.[35]

[34] In the case of the Latin groups classified by Taussig, there exists only four classes which lowers the correlations because it shortens the range, etc. A scale of four units is really too short to be used by the Pearson Product Moment method. From this standpoint, other things being equal, the Barr is preferable.

[35] Cf: (129, 102) and other studies. There has been considerable discussion of this problem by certain philologists like Max Müller, who maintained that language and thinking (in the broad sense) are inseparable. Cf: (52) I:263 for quotation from Müller.

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At least the severe adherent of the other view must bear the burden of proof to the contrary. It is nearer the truth to say that the highest mental adjustments take place in terms of secondary processes ("derived implicit behavior" one behaviorist has called it), processes largely in terms of symbolic imagery, language and other "short cuts" and "cues" to facilitate "advance adaptation." It is true as James[36] succinctly illustrates that mere flow of words is no criterion to thought. Yet as Mead, Dewey, and latterly Watson[37] have pointed out, thinking does go on in language, that is, symbolic terms, and that these "implicit" adjustments are exactly what make for success or failure in the complicated problems of life must be admitted, since these permit foresight, preadaptation, preliminary solution. Certainly we must distinguish between sheer superficial fluency and the actual use of language symbols in thinking. Tests which do not take these distinctions into account are of course inadequate. Good vocabulary tests (which would take into account qualitative differences), well-constructed completion tests, and analogies and proverbs tests do *not* constitute tests of mere verbal fluency. A composition scale, accentuating verbal ornateness, on the contrary, might be such. (cf: 91).

As was pointed out above, those tests in alpha which are especially difficult from the language side yielded lower averages because of the percentage of zero scores, and zero score, as has been noted, is not synonymous with *no ability at all*, but means that the instrument of measurement did not register. Moreover, the percentage of zero scores was high for all the 12-year-olds in tests IV and V, only relatively greater for the Latins than for the Americans. The accusation of language against test VI in alpha cannot be made, yet the percentage of zero scores in certain of the Latin groups is high there. Further, test VIII (Information) which is at least indirectly dependent on communication and language yields high correlations with grade locations and also shows a higher mean score than would be expected if the language factor operated as might be imagined. On the other hand, Oral Directions, Arithmetic Reasoning, Number Completion, and Commonsense Judgment are not greatly dependent on language and show

[36] Cf: (52) I: 263 for an illustrative quotation from a writer who covers ignorance of scientific fact with high-sounding words.

[37] Cf: (130, 29, 72, 19). G. H. Mead and Dewey both point out that thinking goes on in symbolic terms. Language is a form of gesture, but highly complex and integrated. It is preparatory to activity of a grosser ("explicit") kind. "Meanings," "interpretations," "adaptations" are carried in symbolic terms (sensory and imaginal at root) but functionally organized around methods of adjusting to the world about us.

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that the Latins do not compare with the Americans at all favorably.

To test the influence that the zero scores might have on the correlations of alpha against grade location (as the best single criterion outside the test), all cases having zero scores in any of these four tests were thrown out and the results correlated with grade. The S. J. Italians who were used as a sample for the Latins, gave r of .64 and the S. J. Americans, r of .57. The alpha still remains a better measure of educability than the beta.

It is difficult to devise a test in performance which is completely analagous with a verbal test, since the mental processes making for success in the latter are difficult to put over into tasks required in a performance scale. Stockton (102) has tried to show experimentally that there are two levels of mental performance. On the basis of his results it is clear why the alpha may have proved too difficult for the Latins. It was not language, but ability, that brought out the lower scores.

So on the other hand, with beta and the Americans. The motor-perceptual features of this test might operate to handicap the brighter children of this group, or, as was likely the case, the test battery proved much too easy to differentiate them in certain of the items, as tests I, II and possibly VII. This inadequacy of beta for the Americans made for more homogeneity in the group than the facts really warranted. This lowered the C. T. and dispersion possible in another, but better, test, and also caused the lowering of the correlation of beta against alpha.

With the beta differentiating the Latin groups fairly well, the significant thing then is that alpha, the verbal test, proves so diagnostic of their abilities in spite of its nature. We have seen that in teachers' estimates of intelligence and school work, in grade location, the Latins lie below the Americans, and so in the mental tests themselves. While the overlapping of the Latins and Americans even in beta is slight, the fact that with the Latins the correlations of the alpha against the outside criteria is uniformly high, goes to prove that the wider overlapping of the alpha is a much truer picture of the facts. Had the beta test been just to the Americans, the overlapping there would have been similar to that in the alpha.

The up-shot of the whole matter is that the alleged language handicap of the Latins simply *does not exist to the extent imagined.* All the measures used in this thesis prove the contrary, and only

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with the very youngest pupils and those newly immigrated could it play an extreme but rather temporary role. The writer stands firmly on the ground that the cause of school difficulties must be found in the more innate intellectual differences. If the differences are language ones, then even with the obvious handicap of the beta for the Americans, the Latins ought to far outreach them in beta.

Other studies have confirmed the same findings. Dickson (31) found that the Median I. Q. of 23 Portuguese first grade pupils was 84, that for 37 Spanish-Americans, 78, and for Italians, 84. In comparable groups, the I. Q. of 63 pupils of Northern and Western European descent, was 105.5. The survey of X County, in California (133) demonstrated that feeble-minded children were several times as numerous among the Latin groups similar to these (in part the same) studied here, as among the "native" American stock. The number of delinquents and offenders in prison for these groups far outnumbers their relative percentages in the population (114, 134). Roll (114) made a study, under Terman's direction, of 119 Portuguese children in Santa Clara and found that these children had a median I. Q. of about 86.

Murdock (76) in a study of certain grades in the public schools of New York City, showed that the Italians did more poorly than any other of the three groups studied. These groups included "native" Americans (not of the best, but of lower middle class families), Hebrew and Italians of first and second generations in this country, and Negroes. The overlapping of the 12-year-olds studied revealed that 13.5 per cent of the Italians exceeded the median for the Hebrews, 50 per cent of the Amricans, and 33.33 per cent of the Negroes. The Italian group was selected so as to eliminate the poorer pupils or those thought to be handicapped with language difficulties, while in the other groups the pupils were taken as they came. The test was not a performance test, but since the pupils suffering from language handicap were not selected, the question of the nature of the test in that regard may be ignored. The important thing is that the Hebrews, who had been no longer in this country than the Italians, did as well as the "native" Americans, while the Italians did not equal the Negroes. Murdock's results are particularly confirmatory of those of the present thesis.

Brown (18) has recently added another study of the intelligence of various nationality groups. He found the median I. Q.

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for 51 Italians around 77. The Italian group with which he worked, however, was of very low mental calibre throughout. Pintner and Keller (82) report the median I. Q. of the Italians whom they studied as 84. In their group the Italian seemed to be of higher level. Brown's group contained 76 per cent who were below the normal for their age, and this is, as he pointed out, the principal cause of the school retardation.

If the matter of school success with these Latin children is environmental, then the longer they remain in school the better their condition mentally ought to become, for the influences of home would be overcome.

Thomson (118) recently made a study of the same pupils who had been tested by Dickson, some three to five years earlier, to discover if the school conditions had improved the I. Q. ratings of the pupils. She worked with a group that consisted of children of Latin origin on the one hand, and of North European descent on the other. After correcting the first I. Q.'s for the discrepancies of chronological age that the re-testing uncovered, she found that the average change in the I. Q. downward was slightly greater for the Latins than for the Americans. On the whole the I. Q. remained very constant, however. She says (p. 88):

> It seems that as a whole the tests are as accurate a judgment of the mental ability of the low foreign element as of the American children. . . . Furthermore the fact that the central tendency of change is almost as low on the minus side for the South Europeans as for the other groups, tends to show that they are really of low intelligence; had language difficulty caused the first low median, the central tendency of change would now be plus. It seems evident that although the tests do involve the use and understanding of language, low scores result not from failure to understand, but from failure to comprehend.

One further check on the reliability of a language test to diagnose the mental capacity of the foreign children was made. All the Italians who were born in Italy were thrown together into correlation arrays of alpha against grade location, and beta against grade location. In these children, surely, if anywhere, the language handicap ought to come out. The correlation of beta against grade situation was .72; for alpha against the same criterion, it was .76. While the P. E.'s, .05 and .04 respectively, mean that another sample might show results practically identical, it still remains pertinent that the verbal test *is as good a measure of the mental ability of these children* as is the non-verbal, if not better, and even with the children who have been in this country not over

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five or six years. This ought to dispel any further doubts as to the answer to the problem which we, at the outset, put before us.

In general summary of this chapter we may lay down the following facts:

1. The Latin pupils in our sample are decidedly inferior to the American children in general intelligence when measured by the teachers' estimates, and this in spite of the tendency of the instructors to over-rate the Latins.

2. The Latins are likewise inferior to the Americans in their school work, though here as in (1) they are over-rated. In both (1) and (2) the mean difference between the Americans and the Latins is between one-seventh and one-eighth of the total range of the scale upon which they were rated.

3. In grade location the Latins lie on the average nearly two grades below the modal grade for the Americans. If it be thought that the average I. Q. of the American group in its modal grade be 100, then the average I. Q. for the Latins would be near 83, assuming that all the children were graded according to their abilities.

4. The economic status of the groups differs widely, but the mean intelligence score of the children whose parents were classified indicates that there is a rough relation between occupational status of the parents and the general intelligence of their offspring in the public schools. The mental tests show some correlations with the occupational ratings. If not large, these are at least indicative of a certain disposition of the occupational level to reflect the general ability of the families.

5. The psychological results show in the case of alpha: (a) Considerable difference in the C. T. and in the variability. Not only do the Americans outrank the Latins on the average, but they are also much more variable. (b) The measurement of overlapping reveals that about 7.0 per cent of the Italians exceed the median performance of the Americans in alpha. For the other Latins the per cent exceeding the American median is still less. Only 1.0 per cent or less exceed the upper 25 per cent of ability of the Americans.

6. Like results for beta show: (a) That the Americans significantly outstrip the Latins even in the performance, non-verbal test and this in spite of the fact that the beta does not differentiate the abilities of the Americans. This latter makes the variability of the Americans slightly less than in the Latins, but not greatly

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different. (b) The overlapping, while greater than with the alpha, shows that but from 11.5 to 16.1 per cent of the Latins exceed the mean of the Americans, and but from 5.5 to 7.0 per cent of the former exceed the upper 25 per cent of the latter. Even if one accepts the beta results as a true picture of the comparative mental capacities, the results would still indicate extremely large differences in native ability as measured by the tests.

7. The correlational results indicate: (a) That the alpha and beta are fairly comparable tests, but that the alpha as measured by correlations with the best outside measures of school success and of general intelligence is somewhat better for diagnosis of mental ability even with the Latins than is the beta. Only in the case of the Spanish-Mexicans where the general level of ability is low and does not reach into those abilities demanded by the alpha throughout, does the beta show up more favorably than the latter. For pupils as inferior as these, either of two scales ought to be applied: a performance similar to beta, or a verbal test, more commensurate with their mental ages. There is evidence from the correlations of the individual alpha tests against grade location, that the language handicap does not operate beyond what it would in terms of mentality and that a good verbal test fitted to their intelligence would serve for segregation and prediction better than a non-verbal. For that matter, this same comment applies to all the Latin groups.

8. In conclusion, the writer believes that he has shown: (a) That the alleged language handicap does not in fact exist in the case of the children of South European descent, to the great extent imagined. It serves as a handicap chiefly for those newly arrived in this country, but of these, those who have the capacity do acquire the tools rapidly and those who have not the capacity remain on a lower level of ability.[86] (b) That the true difficulty is one of mental capacity, or general intelligence, which makes the Latins unable to compete with the children of North European

[86] Borncamp (13) in his study of Orientals in California showed that as soon as these children acquire the rudiments of English they forge ahead in their school work. The Orientals seem to compare very well with the older American population in ability. Cf: Yeung's study of Chinese children in San Francisco (140).

Jordan (54) dealt with almost exclusive North European stocks in his thesis. The tests he used were not general intelligence tests, but single psychological tests of differing diagnostic value. He showed no correlations with outside criteria and no degree of overlapping. He emphasizes strongly the influence of the language handicap. Brown (18) on the other hand remarks: "It was found that after a child had attended an American school for one or two years, he tested as high (on the Binet) by employing the English language as by using his native tongue." In the present study the 12-year-olds had been at least five years in attendance in the public schools with the exception of a few cases, in which latter the language handicap did not operate anyway.

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ancestry in the mastery of the traditional American public school curriculum. (c) If the facts of mental heredity be taken as valid, these findings throw great light on the problems of racial mental differences. The writer does not assume that these samples studied here are typical of *all* South Italians, Portuguese, and Spanish-Mexicans, but for the classes of people studied he does maintain that the results are significant. Discussion of the bearing of these findings on questions of school policy, of immigration, race mixture and the theory of racial differences will be handled in the following chapter.

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CHAPTER IV. THE APPLICATIONS OF THE DATA TO THE PROBLEMS

1. Modification of School Policy and Curriculum

With the data concerning the intelligence of the children of South European descent before us, what changes in the educational program must be made to cope more adequately with these facts? This section will deal briefly with a review of the educational changes which are essential.

One need not raise the question of innate endowment versus environment as the chief cause of mental differences when dealing with practical school problems of the foreign children. First of all, the problem for the school administrator is not fundamentally one of race but of the educability of all the pupils with whom he has to deal. Of course, if the bulk of the mentally retarded in any given school system, as San Jose, turn out to be of Latin stock, then in one sense the question does involve racial differences. The comparable point, however, for the country at large is this: If the stream of immigration from Southern and Eastern Europe continues to inundate us, the schools must take into account the mental abilities of the children who come from these racial groups. Without attempting to say whether a few generations of residence in this country will raise the average intelligence of the peasant peoples who come to the United States, the truth remains that the mass of the Southern European immigration of South Italian, Portuguese and Spanish extraction, and the Mexican immigration from our neighboring republic bring us retarded material which the public schools have to handle. So long as entrance into this country is unrestricted, the schools will have an ever-recurring horde of such pupils to deal with, including the first and possibly second generations after arrival here. The present situation is already causing a revamping of the curriculum and the general educational policy in many school systems.

On the other hand, if the differences in mental ability revealed in such samples as studied here applies to the bulk of the source of our immigration from South Europe and the inheritance of mental endowment, as revealed in the tests, be taken for granted, or even as a prominent factor, then the educational policy, even

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with the restriction of immigration, would have to continue in a modified form to care for the on-coming generations from these inferior stocks. Hence, whatever the theoretical and sociological phases be, for the school man *now*, they are of the same consequence. What he wants to know is *how* and *what* to do today.

The alterations will be treated under the headings: (A) new school policy; (B) administrative and supervisional changes; (C) curriculum changes accompanied by changes in teaching practice to go with them; (D) a public conscience and co-operation with the schools.

A. New Educational Policy.

The school systems investigated in this study are not unlike the majority of those of similar size throughout the country. There has been a tendency toward a business organization of the administration in terms of the educational *status quo*. The assumption has been that, so far as the elementary schools are concerned, barring a few minor changes, the old curriculum and the old organization have proved adequate. There has been little tendency to think of the educational program in terms of objectives in education, in terms of the mental abilities of the materials with which the teachers have to work, or to consider modifications in the course of study and the school procedure.

A new policy must grow, not out of arm chair discussion, but from a careful sociological-educational survey of the localities, the economic life of the inhabitants, what the children of the present will be doing in later life in industry and agriculture or business. And most important, must be investigated the general levels of intelligence in the school population that are to be instructed."

B. Administrative and Supervisional Changes.

The notion that we must have a common school organization for all pupils must be given up. In order to care for the facts of individual differences, two general schemes are put forward:

i. Standardized intelligence tests should be applied throughout the elementary schools. While it is true that there are no very reliable group tests for individual diagnosis in the lower grades yet available, there are some scales that serve well enough for

" Since the above was written a new superintendent has taken over the control of the San Jose schools, and so far as this community is concerned we may look for rather radical changes in school policy. The new executive is already carrying out some of the recommendations of this chapter.

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group classification."[40] Furthermore, Binet tests, teachers' estimates, knowledge of emotional features, analysis of home conditions and social status, will give good clues to individual treatment in the doubtful cases. Violent reclassification can not be brought to pass over night, and the logical places to commence in San Jose, for example, are in the schools so overwhelmingly Latin in population. In the case of the communities like Santa Clara, Milpitas, Half Moon and South San Francisco, where the school system is smaller, the administrative detail is not so difficult for the superintendent. Since the matter is one of relative educability, the approach is only suggested from the side of the schools predominantly foreign because it is there that the largest numbers of the backward are found.

ii. After the testing of the children with group and individual tests had been undertaken, reorganization within the teaching and supervisory units must be made. There are several schemes already in vogue in certain cities, any of which might prove, with local modification, applicable."[41] Any plan must provide at least for three classes of pupils, the mentally retarded, the normal, and the superior."[42] School people and the public at large must learn to give up the idea that uniform progress through the curriculum is possible for groups of pupils of varying abilities.

If in any given school system it were discovered that the influx of children born abroad constituted an immediate problem, special classes in English should be centrally located where these pupils could receive instruction in small groups in the mastery of English. Here performance tests might well be employed for tentative classification of the new comers according to native endowment. After given periods of instruction, other tests might be used, and as the pupils proved their capacity and gained the use of the English tools, they could be shifted into their proper places in the regular organization.

[40] It is still an open question as to what constitutes "normal" intelligence. Doll (32) has recently attacked this problem with considerable data upon which to base his facts. Terman (118) differs from Doll. There is serious need of qualitative studies upon general intelligence. Purely quantitative approach can not succeed without its companion method. Cf: Boring (12) for a severe criticism of the present measurement of intelligence

[41] Cf: (71) for general treatment of present methods of dealing with the exceptional children in our schools. Cubberley (24) has a brief discussion, with references, to the Batavia, North Denver, Pueblo, Cambridge and other schemes of classification. Wright (138) has described what has been done in Newton, Mass., to accommodate those pupils with high school work, fitted to their abilities, but who are unable to master the traditional high school courses.

[42] Cf: (43) for a recent criticism of mental age classification in public schools. There is much work yet to be done before completely satisfactory group tests are at hand upon which to classify children. Some adverse critics, however, seem to forget the remarkable progress we have already made in this direction.

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The kindergarten has been one of the great blessings in schools where the foreigners attend. It furnishes our most vital nexus between home and school. For the younger children just about to enter school it serves as a preparatory stage in overcoming the language factor from homes where this still plays a part. It is said that the Italian and Portuguese mothers "dump" their offspring on the kindergarten because it is a convenient place to leave them while they go to work. Be that as it may, it is important that the opportunity for building up bonds between the foreigners and the schools lies right here. Emphasis should be put on the importance of the kindergarten for formal education and also Americanization.

iii. Standardized pedagogical tests should be introduced. Through these and supervision a constant check should be kept on the educational product. The present methods of teaching, even the out-worn course of study, probably do not yield the educational results they might. With the introduction of re-grading and a new curriculum, pedagogical objective will become more definite and hence the need of checking these at critical intervals for the evaluation of the new organization.

iv. The methods of testing, both psychological and pedagogical, require for effective administration the employment of a research director for the schools. In a city the size of San Jose such a scheme is possible. With a present budget of $5,000 per annum, $3,000 for salary of research director and $2,000 for maintenance and materials, a tremendous saving could be effected in the whole educational process. With nearly 6,000 children in the elementary schools, this would mean a yearly expenditure of about 85 cents per child, or less than one-half a cent a day per child for the improvement of his instruction. Much more than this amount would be saved by the realignment of pupils on the basis of ability alone.[4]

C. The Curriculum.

The curriculum is the crux of the matter! Given a range of abilities measuring from those represented by the lowest 25 per cent of the Latins to those found in the upper 25 per cent of the non-Latins, what must be done to make the content of education more commensurate with the abilities of these pupils? The final answer

[4] With very little additional outlay, say $1200 a year for an assistant and a slight increase for clerical aid, one research director could cover the needs not only of the San Jose schools but the schools of the smaller towns like Santa Clara which cluster around it, and though separated by political boundaries, are economically and geographically extensions of San Jose.

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can only grow out of empirical experience, but the following propositions may be laid down as essential:

i. The principles of curriculum making must take into account the need of preparation of the children for their proper economic life activities in accordance with their abilities.[1] Furthermore, the intellectual and moral heritage of the past must be given them, so far as they can assimilate it. This will include first a training for occupational efficiency, technique and habits of work; second, such habits and attitudes as make for social co-operation in political, economic and social organization, and also personal habits of efficient living, and third, training for appreciation of the content of the arts and sciences for satisfaction and happiness. The richest capitalization of capacities possible for each child, independent of economic background of family or of social prestige!

ii. The public and the school authorities must recognize the profound differences in the educability of the children who come to the schools. We are rapidly giving up the notion that all are of equal ability or of equal educability. The ideal that education wipes out all differences must be modified and the older notion of Plato, if you please, adopted, that education is for selection. The training in technique and information it provides, but only to those who are able to take it (cf: 80).

With this point in view, the school authorities may well go ahead to re-make the curriculum in terms of the abilities and needs of the pupils in its system. For those of average and better than average ability, the curriculum may include much of the older materials, reorganized albeit to fit the modern needs, for those who do not possess the capacities of the average school child, the curriculum must provide vocational training, and skills which will allow their best abilities to express themselves.

Society through its schools, however, must guard against the narrow meaning of "practical" education. Training which will afford the greatest possible economic independence and social competence for these levels of intelligence must be given. For example, training for skill in a highly specialized part-process of manufacturing only is bad practice. It may mean skilled workmen and higher profits in industry but it is not a *complete* education even for people mentally below par. There is some danger

[1] Such principles are laid down in Dewey, Bobbitt, Bonser, Snedden, and others. While these men have laid down the principles of curricula making, none of them has recognized the tremendously important matter of native endowment of the school population for which any given curriculum is made.

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that the facts of individual differences may be abused. A sane social ethics must correct this contingency (30).

iii. The content of the curriculum for all three groups needs re-making. Recent studies and proposals are pertinent here.[46] The class-room teachers and also the principal and superintendent should have a hand in making the course of study. For the Latin groups especially the work that has been done in the Philippines, Hawaii and Porto Rico should be investigated. There, much has been accomplished to fit education to the requirements of the populations who are of like racial extraction to those considered here.[46]

It should be remembered, however, that the possession of even backward mentality does not preclude the possibility of considerable appreciation of the arts, literature, music and cultural products for these persons. It is a mistake to think that all the backward need is hand and eye education, and to leave the rest to those of better ability. True it is that the production of great pieces of culture as of science comes largely from special talent or superior ability, coupled with other factors,[47] yet the use and enjoyment of these products may be made to reach the great mass of mankind. There is much in science, literature, art and music that can be given these children of backward ability in their education.

Observation by the writer, which is confirmed by the library officials, shows that the Latin children who can, read great quantities of books of literary and mechanical turn. This should be encouraged. It is an interesting side-light on the alleged language factor. The bulk of Italian, Portuguese and Spanish-Mexican children learn to speak English as rapidly as they can. It is well-known to social workers that the children of immigrants ridicule their parents' inability to speak English, and that they themselves only use the foreign tongue when the situation actually demands it. These children read English books, play games with American boys and girls, enter rapidly into American life. The school but serves as a selective agent. Those who are mentally retarded remain in the lower grades until they may drop out of school, or are pushed on into grades beyond their abilities, to become serious discipline problems for the teacher.

With present tax problems what they are, the immediate future advances in educational administration will run naturally to in-

[46] Cf: (11, 28, 77). Also the files of Bureau of Education reports.
[46] Cf: Bur. of Educ. reports on education in the Philippines, Hawaii, Porto Rico. Also Philippine Craftsman (Manila), a magazine devoted to the problems of education for the Filipinos. Cf: also (68, 70).
[47] Cf: *infra* Chap. V on cultural features.

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ternal reorganization. While building programs are always present, it is not wholly unfortunate that present financial conditions are forcing the attention of the boards of education and the school executives to look to reorganization of teaching, grading and curriculum for relief of the school problems rather than to mere expansion of floor space.

Given the material equipment in buildings, a limited budget,—what can be done to improve the educational process? The most efficient reorganization of the school system from the inside will proceed on some such lines as are briefly outlined in this chapter.

The co-operation of the public in this school problem must not be passive. There is a tendency in our country to legislate reforms into existence in the pious hope that they will care for and operate themselves after they are devised. This attitude does not reach only the legislator. It is enlightening that the prominent mothers of one of the cities studied in this thesis who were greatly interested in Americanization programs for the foreigners, refused to send their own children to the school where the children of these foreigners attended, but secured permits from the superintendent of schools allowing their own children to transfer to the "better" schools. Such behavior speaks much and needs no comment.

iv. Teaching methods will be accordingly altered to fit the needs of the new classes. If much more vocational and manual arts work be introduced, if contacts with outside industry and business be established to care for the older pupils wishing to go over into occupations at once, the flexibility of the school system must be much greater than it is at present. The project method of instruction becomes strikingly pertinent to a scheme of re-grading and classification here outlined. Its possibilities are just now appearing.[46]

D. Public Conscience and Public Co-operation.

The above is a large assignment and can only be carried out slowly. It needs additional finances, no doubt, and these are dependent upon public opinion and support. It is not necessary at this point to go into the factors that enter here, but it must be

[46] Cf: Wells (189) on project curriculum. It ought to be noted that if the states continue the movement to enforce education up to sixteen years for *all* children, and part-time education up to eighteen, the content of the courses for those who are retarded or who have dropped out of school must be made to fit their interests and native abilities. For these children the curricula must not be patterned along traditional lines. Cf: (1) for outline on part-time education and other references. On immigrant education cf: Thompson (117). He has little or nothing to say concerning mental differences in the immigrant children as a cause of the educational problem.

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noted that until a clear recognition of the place of the school in life adjustment is held by the thinking public, and further until a willing co-operation is forthcoming, the schools themselves must struggle on as best they may with the present means at hand.

Direct co-operation may be fostered by the neighborhood organizations, public philanthropic and religious bodies, but the center must be the school. With the coming of occupational specialization, rapid communication, and general complexity of life, the neighborhood as a social unit has almost disappeared in American cities. This is true even in cities the size of San Jose. People have been freed from the attachment and dependence of "face to face" contacts.[87] Yet the school serves the great purpose common to us all, and can be made the rehabilitator of those social values upon which our political structure rests. It may be made the center of a new neighborhood spirit.

The best hope for the schools which are organizing themselves along the modern lines internally is to co-operate with the outside agencies of sociological nature who are realizing the broader aspects of education and citizenship.[88] True, it means a new view of the profession of elementary teaching, it means conscientiousness on the part of the public of which we have no general evidence as yet, but it is in such hopes that the practice of the future is born. Before all else, a public conscience looking to an active co-operation in making the school the center of the social group life of the modern city or country, where people may come to enjoy, in accordance with their interests and intelligence, the cultural heritages of civilization and learn anew the human values of neighborhood co-operation and common purpose.

2. The Bearing of Our Findings on Problem of Racial Mental Differences and Immigration

It is not the purpose in this section to deal at length with the problem of racial differences or mental heredity in reference to racial miscegenation in America. The writer has elsewhere (144) dealt with certain phases of the problem. We shall, however, review briefly the anthropological backgrounds of the South Europeans, then deal with mental differences, heredity and race stocks, and finally with a summarizing statement on hybridization and Americanization.

[87] Cf: Young (143). In this study the writer described the disintegration of a neighborhood under the influence of modern industrialism. The personal attachments almost completely disappeared and neighborhood spirit practically vanished.

[88] Cf: (36) for report of neighborhood organization in Cincinnati.

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A. The Anthropological Backgrounds.

Anthropologists are now prettly well agreed that there are today no pure races in Europe, using race in the strict sense. That striking differences exist between the sub-races, few deny. The older classification of European racial groupings gave three: Nordic, characterized by blondness and dolichocephalic head-form; Alpine, brachycephalic brunette type; Mediterranean, dolichocephalic brunette.[61]

i. The Italian Racial Origin. Italy as a whole constitutes a pretty anthropological problem into which we cannot go. It is now well-agreed that the basic stock of the Italian peninsula is much more homogeneous than writers of a generation ago imagined. Between North and South Italy, however, there are some quite marked divergences.

Ignoring the theories concerning the very oldest inhabitants of the peninsula, recent researches have revealed a civilization contemporaneous with the Aurignacian epoch in France from which some of the best Italian scholars maintain certain strains remain even today. Anthropologically, however, there has been no continuous line of racial growth. There still persist many difficulties unsolved. Pigorini, who has spent his life at these questions, believes that there was a time when suddenly in the midst of the older population appeared a "new people, whose usages, customs, arts and crafts" were totally exotic. Racially, too, these new-comers must have been a good deal removed from the indigenous folk. The following excerpts from Guiffrida-Ruggeri give the significant facts of the early settlers (48):

> These new inhabitants probably came originally from the East, in canoes, and having crossed the Mediterranean landed on the southern shores of the peninsula, as well as in Sicily and Sardinia. . . . They were a pastoral people and could in fact be no other than those who later came to be called Ligures (Liguri) by the historians. . . . The Siculi belonged evidently to the same race as the Liguri, and physically they were both people of the Mediterranean type. The most ancient neolithic population of Sicily, . . . must have come straight from the Eastern Mediterranean, probably from Crete. . . . The legend of the "Sicani-Iberi" invaders of

[61] There has been considerable mixture of these three types all over Europe. Retzius (88) speaking of head-form, notes that all degrees from long-headedness to short-headedness exist in nearly every group of skulls or living groups examined by anthropometric methods in South, Central and North Europe. Such variation is found in pre-historic specimens (Neandertaler and others). Whether a given geographical area contains a long-headed folk or otherwise is a matter of relative frequency. Retzius shows that Sweden perhaps is the country of the purest North European sub-race, yet the proportion of dolichocephalic types to brachycephalic types, in Sweden, is represented by 87 per cent for the former and 13 per cent for the latter. Ripley (90) Ch. 10 shows that there is tremendous overlapping of types even in Italy. Cf: also (48).

Boas has pointed out (9) that overlapping is a characteristic among races in nearly every physical trait. It is also true of mental traits. It should be remarked in passing that the correlation between head-form and tests of intelligence is practically nil; cf: (25).

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Sicily is now put aside. Similarities in the western part of Sicily to Iberian civilization are not lacking, but this is probably due . . . to "that great wave of influence which touched the coast districts of Western Europe, bringing with it the dolmen and dolmen-pottery" rather than to actual, large immigration.

These invaders are now credited with either an African or at least a Southeast Asiatic origin, different from that of the North European dolichocephalics. Sergi it was who first vigorously championed the African origin of the more immediate ancestors of the Mediterraneans. He does not think the race was related to the Aryans, at least in any near sense, but adopted the Aryan tongue. He says (97, p. 179):

I affirm that the Italici, of Mediterranean origin, were forced through violent invasion to adopt the Aryan language.

A follower of Sergi writes (15, p. 30):

The common ancestral home of the race has been placed, though there is no unanimity as to the exact locality, at the head-waters of the Nile, or at least somewhere south of the Sahara. This people is supposed to have crossed over into Europe by various points—Gibraltar, Malta, and Sicily, the Greek Islands, and Asia Minor—and spread over the whole continent as far as our own islands (British) and Scandinavia.

Whether the *meridioni* are actually of African origin or of Asiatic, via North Africa, is yet unsettled. It is significant, however, that there seems to be a shading off of this stock into the negroid types.[83]

The new inhabitants of Sicily and South Italy proper rose, under Mycenean and Ægean influence, to great culture and power.

Speaking in broad cultural periods, we may say that contemporaneous with the movement of the Mediterranean race, the races later known as Alpine and Nordic were moving toward Western Europe. In the sweep of the Alpine through Central Europe they avoided Italy, except in the north, where some of them coming over the Alps from the lake dwellings in Switzerland settled in the marshes about Venetia. The bulk of the population in North Italy, however, still remained the dolichocephalic brunette. Later with pressure of the oncoming hordes to the east, the descendants of the Alpine types pushed on south across the Po into Emilia and even in some instances over the Apennines. These peoples drove the older inhabitants before them to the south and it is probable that the later offspring of these dispossessed groups founded Rome. They did not in any likelihood reach beyond

[83] Cf: (53, p. 159ff.). Johnson writes: "There is an ancient Negroid strain underlying the populations of Southern and Western France, Italy, Corsica, Sardinia, Spain, Portugal . . ." Cf: also Reuter (89) for a brief review of mixed-blood races. Kroeber (62) notes the fact of negroid strains in South Europe.

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Latium. The brachycephalics who drove the forerunners of the Latins south became the Umbrians of ancient history. The Etruscans, who have long been an enigma (cf: 48, p. 329 and 90, ch. 10), need not detain us. The important thing at this point is simply that the shock of the Alpine invasion into the peninsula in the north scarcely affected Italy south of the Tiber.

So, too, the Teutonic invasions that came later. It is now generally thought that the various barbaric hordes that swept over the Mediterranean territories were neither excessive in size, nor always permanent in effect upon the big bulk of the indigenous peoples.[53] So far as the racial mixture went, it spent itself as Livi and modern anthropologists have shown long before it reached even South-Central Italy. Only scattered fragments ever extended to the "Toe and Heel" and into Sicily.

There went on, however, throughout the later historic periods accretion and racial mixture among the peoples of South Italy and Sicily. Freeman called Sicily "the meeting place of the nations." The Greeks in the classic period, then later than the "barbarian" invasion, the Saracens and Normans contributed something to the ethnic composition of the people. This has resulted in physical instability of type, and possibly instability of mental type, and gave rise to the further comment of Freeman, who wrote: "For the very reason that Sicily has found dwelling place for so many nations, a Sicilian nation there has never been."[54]

There are, in brief, two principal sub-racial stocks in Italy; but the basic one, even in North Italy, is the Mediterranean dolichocephalic. The Alpine influence is chiefly in the northern sections. The actual amount of Teutonic influence in the masses of the population is small. Today we realize that the invasions of the past were made by relatively small groups who were quickly absorbed in the native population, which altered only slowly. The ethnic displacement now seen in the Americas could only arise in view of modern transportation and industrialism. There is nothing analogous in history.

The immigration statistics inform us that 85 per cent of the

[53] Cf: (90), Ch. 10, using data from Livi. Ripley is perhaps slightly more sympathetic to the older view that the Teutons influenced the population of Central if not Southern Italy.

[54] Quoted by Ripley (90), p. 271. It is significant that Sicily with its heterogeneity of peoples has not turned out a stable race. As we shall have occasion to note in a subsequent paragraph, the "melting pot" in one sense is a decided "myth." To produce a stable race, considerable isolation and inbreeding are necessary. Some of the advocates of a "free and easy" entrance of all "comers" into this country have the pious wish that out of this strange matrix will come ultimately a great people. They should peruse the history of some of these "cockpits of Europe," where the contact of racial stocks has been most violent and frequent.

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Italian immigration of the last twenty years is from South Italy and Sicily. Its source is the lowest economic classes and in origin these people are largely Mediterranean with a noticeable negroid strain and other exotic mixtures. In the nature of their racial extraction we have a clue to their mental status. These anthropological facts furnish us with one probable cause of the marked differences between the children of these immigrants and those whose parents are of North European ancestry.

It must not be forgotten that this study is dealing with a sample of the South Italians and Sicilians, not with the peoples of South Italy and Sicily as a whole.

ii. The Portuguese Racial Backgrounds. The sources of the Portuguese immigration into California are three, and there are slight differences in the racial composition of each. These three are: (1) Portgual proper; (2) the Azores, Cape Verde Islands, and Maderia; (3) the Hawaiian Islands. The majority of the parents of the children we investigated came from (1) and (3).

The Portuguese belong to a sub-racial group which is closely allied in origin to the Mediterraean from which the sub-stratum of the South Italian population arose, but it contains even more negroid features than the latter. During the historical period the population of the Iberian peninsula mixed with the invaders from the North to some extent. Sergi comments (97, p. 162):

> Observations on the modern populations of Spain and Portugal have shown that, notwithstanding invasions from the end of the neolithic period and after the beginning of the age of metals, the primitive type of African origin has remained prominent.

The report of the Immigration Commission (51) informs us that most of the migration from Portugal proper to the United States is from Galicia and North Portugal, where the stock is probably somewhat more amalgamated with the Alpine and Nordic strains.[46]

The Portuguese from the Azores, Cape Verde and Maderia islands are all more or less recently mixed with African negroid strains due to the presence in these islands of much black labor. In the Azores there are some Flemish influences running back several centuries. The mixture with the Africans has probably not enhanced the native ability of the Portuguese stocks (21, p. 90). Furthermore the Azores were at one time a prominent penal colony

[46] There was some Moorish intrusion in historical times but the extent of the same is difficult to estimate. The best sources in English on the Portuguese immigration are (21, 93, 142).

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for Portugal and the offspring of some of the penal colonists mixed with the remaining population. It would be a sheer guess as to the possible effect of this strain. However, the difference between the racial features of the Portuguese of the islands and the continent is not marked, and the differences if any are largely matters of degree of negroid influence.

Beginning about 1880 (68) the plantation owners of Hawaii, abetted by the Hawaiian government of the time, began importing cheap Portuguese labor from the islands just mentioned, and also from Portugal proper. At present they constitute the majority of the white laboring class in Hawaii. MacCaughey (68) has reported briefly on the racial mixture of the Portuguese with the various other races in Hawaii. While they have mingled rather freely, they have not significantly altered their racial characteristics. MacCaughey does remark, however:

> An appreciable percentage of Hawaii's population is more or less infused with Portuguese blood, as witnessed by the marriages of full-blooded Portuguese men and women with mates of mixed Portuguese blood.

In brief, while the Portuguese is not so homogeneous perhaps as the South Italian, he is basically of the same extraction.[56]

iii. The Spanish-Mexican Racial Backgrounds. Racially this group is the least homogeneous. In it were included a few subjects of apparently true Spanish origin, who came to California either directly, or via Hawaii. But the large majority of cases studied were of Mexican origin. It is generally conceded that the sub-stratum of the so-called Mexican population is Amerind.[57]

The racial origins of the Spanish peoples are much the same as the Portuguese and South Italians. It is unlikely that there is a marked amount of either Nordic or Alpine stock in the mass of the people. The modern population is literally descended from the very ancient ancestry. The slight amount of broad-headedness in the population of certain Northern districts shows Alpine (Celtic) influence. It is not extensive. On the whole, probably, the Spanish peninsula is racially even more homogeneous than any part of Italy, and especially more so than either North Italy or Sicily in particular.

In Mexico miscegenation among various racial elements has gone on since the very opening of the country by the Spaniards.

[56] No attempt was made in the present mass study to segregate out the continental Portuguese from the Islanders, or to classify according to possible negroid characteristics. A careful study of individual cases ought to take these matters into account.

[57] Cf. (84, 96, 97) Ripley, p. 464, mentions the homogeneity of the native Spanish stocks in the New World. Wallis (126) has written a brief paper on the Mexican immigrant in California which gives some facts on his temperament and economic status.

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Since in the early settlements few Spanish women were found, there grew up a good deal of sex contact with native women. The Spanish and Portuguese seem never to have been opposed to miscegenation with the stocks with whom they came in contact. Moreover, besides the mixture of the Spanish and native Indians, the introduction of negro slavery into the New World brought a third factor into the situation. Today the class lines in Mexico reflect the race lines laid down a century and a half ago: At the top are the Spaniards and the Mexicans of preponderant Spanish extraction. These people constitute the wealth and political basis of the country. From these peoples the United States gets no permanent colonists. There is no secure middle class (though one is said to be arising), and the masses divide into groups according to the racial mixture:

> The civil position of every one depended mainly and naturally upon the greater or less whiteness of their complexion. "Todo blanco es caballero."
>
> Of the original elements which are blended in the modern population of Mexico from the contact of races, extending over a period of nearly four centuries, have arisen innumerable combinations which cannot be fully traced or classified. Thus the offspring of a European and an Indian is termed a mestizo; of a European and an African, a mulatto; of an Indian and an African, a zambo or chino (56, p. 220).

There are of course various intermediate grades between these and the process of mixture is still going on. Biologists and anthropologists both look with little favor on a violent mixture of races so divergent as some of these elements are. It is not impossible that part of the socio-economic difficulties of Latin America, especially Mexico, are due to the "character of an unfortunate hybrid race."

> Judgment as to the constitutional quality of this population should be reserved, however, until the conditions under which it has lived and developed have been carefully scrutinized. It is certainly important to try to appraise the Spanish-American stock, for there has never existed in historic times any such other experiment in the mixture of really alien races. . . . In its net results race-mixture plus other factors seems scarcely to have produced a favorable human type in Spanish-America; taken at its very best it has not represented a striking success (56, p. 219).

iv. The Racial Backgrounds of the "American" Children. This topic need not long detain us. The bulk of the ancestors of the children termed "Non-Latin" or "American" were English and German. There was a slight scattering of Swedish and Dutch, and a few Scotch. While even in the Nordics there is mixture with other stocks, the background of the North Europeans is pretty

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generally Nordic. The blond hair and complexion and tall stature of these children compared with the brunetness and stockiness of the Latins stood out prominently. There has been very little mixture of the Latin and non-Latin stocks in the sections of California studied. The contacts are too recent.[88]

B. Mental Differences, Heredity, and Immigrant Stocks.

The assumption was made at the beginning of this paper that there exists at present a good body of substantial scientific literature which proves that mental traits tend to be inherited as do physical characteristics, and that while not every factor that makes for successful adjustment in life is to be sub-summed under the category of heredity, that very much in the way of the fundamental physical and intellectual characteristics are carried in the hereditary germ plasm from generation to generation. It is not denied that environment, opportunity and accident play a varying role in the life adjustments, but without the potentiality of mental development that is innate, these other forces are of no great avail (35).

A second fact must be borne in mind. Mental differences, like physical differences, are matters of degree. Within the groups themselves the variability is greater than the differences between the separate races (120, p. 224). Hence the question of racial mixture of immigrant stocks becomes not one of one race with another, or of one sub-race with another sub-race, but of family stocks of various races. The present American population, barring all the accretions from Southern and Eastern Europe, contains a considerable percentage of strains of low mentality. While the average intelligence of the older stock is high, the range of abilities reaches from distinct feeble-mindedness on the one side to genius on the other. So with the New Immigration, one would not imagine keeping out any particular racial group as such. As Key puts it (59, p. 97):

> The vital point . . . would seem to be, not whether there has been amalgamation in a general sense, but what sort of amalgamation has resulted (from immigrant stocks). . . . Heredity studies are showing wide diversity in our native stocks, and it is a significant fact that, with incoming strains, those of low potentiality inevitably amalgamate with the lowest elements of our native population, while those of high potentiality amalgamate with the better elements.

[88] For references on Nordics cf: (47, 90). Madison Grant's efforts to propagandize the Nordic view is unfortunate. His book is a mine of information and in the second, revised edition his footnotes and bibliographic references are very voluminous. What Grant fails to see is the fundamental fact of overlapping which holds throughout the comparison of all these groups,—physically and mentally.

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Writing of race mixtures, Salmon states (96, p. 240):

> The component races must be virile and sound; they must not be too divergent; the new race must have a period of comparative isolation and inbreeding to fix its characters; occasional crossing with selected races of stock somewhat similar to the components should occur from time to time. There are excellent examples of the production of great races when these conditions have existed and there are examples of the pollution of very superior races when these conditions have been lacking. . . .

East and Jones say (35, p. 264):

> The hybridization of extremes is undesirable because of the improbability of regaining the merits of the originals, yet the hybridization of somewhat nearly related races is almost a prerequisite to rapid progress, for from such hybridization comes that moderate amount of variability which presents the possibility of the super-individual, the genius.

The point, then, of racial amalgamation in the United States is one concerning the type of abilities represented in the races going into the "Melting Pot." The desirable thing for any nation, as Galton pointed out, is a population possessing high average intelligence and considerable variability. This in conjunction with such breeding of the strains of better than average capacity would produce the men and women of above average ability who would not only carry on the cultural progress and thus continue to prepare the tools for the genius to work with when he appeared, but that also out of this high average and somewhat superior stock, through inbreeding, would come the individuals of very superior intelligence whom society terms "geniuses." It is, of course, biologically well known that through crossing of even mediocre or inferior stocks an occasional superior individual appears. But the chances for the appearance of such an exception are very greatly less than the chances that a real genius will arise from high average families, if they are kept uncontaminated from inferior mixtures (35).

We have passed the point of a careful selection of immigrant stocks in this country. We have already enough bad biological strains to serve as a menace to the best possibilities for a long time (22). Hybridization is taking place between the racial stocks in our country. That the biologically inferior tend *always* to mix with their kind, as Miss Keys maintains, is not so. The history of the Jukes, the Kallikaks, the Nams and others proves to the contrary. What is true is that consciously determined birth control on the part of the better elements in the population does take place when the economic opportunities mean that their offspring stand in danger of such serious competition with the less inferior

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as to lower the former's standard of living. It is precisely this fact that makes the problem serious. If the racial stocks that are flooding this country from Southern and Southeastern Europe are of such inferiority, on the average, as to be contented with a lower standard of life, if they are incapable of taking on the best of modern culture, then the sociological significance of the entire matter is apparent. Add to this the fact that amalgamation between these stocks and the older American stocks is certain to take place, and between different levels of average intelligence, we have a more serious phase of the problem presented us.

The writer does not undertake to say whether his findings are typical of the races from which the samples spring, but he does believe that they are very typical samples of the immigration that actually does come to this country from these old world countries. He has already noted that 85 per cent of the total immigration from Italy is from the same source as that from which the largest sample of Latins studied came. He is, however, cautious enough not to deny that environmental opportunities, as well as chance biological variations, may not in particular instances release latent possibilities in certain strains in these peoples in the future.

With the rapid incursion of racial stocks from Southern Europe has begun an inundation of our older population which will result in a racial amalgamation of possibly serious consequences. It is not a problem of the mixture of the Latins in general with the Americans, but of those classes of South Europeans and Mexicans of less average ability than our own American stock of the lower middle classes.

The writer has dealt elsewhere with the findings of other investigators on the problem of intelligence of immigrant children and has there summarized his own results (144). The discussion will not be repeated here. The up-shot of the work of others is to confirm the present investigation. The army results (73), the work of Dickson (31), Miss Thomson (118), Miss Roll (114) and Murdock (76), Brown (18) and the writer's study all indicate a growing body of information which must not be ignored by those who would have us admit all immigrants promiscuously in the pious hope that the future will wipe out present differences: economical, mental and social."

If, however, the language handicap be thought all-important,

" Cf: also minor studies of (75). These latter were by means of unstandardized tests but are still confirmatory of the fact that the Italian immigrants do much more poorly than the Hebrew or North European immigrants. Cf: (106).

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we may dismiss the alpha results and taking beta, where no such accusation can be made, show that the Americans still far exceed the Latins. However, to ignore the verbal-test results is impossible so long as the correlation results indicate, as they do, a high relation between such significant outside criteria of intelligence and school success as grade location, teachers' estimates of school work and of general intelligence.[60]

One question must be considered: Perhaps the general intelligence of the non-Latin group is higher than that of the typical "American" population. We saw above[61] that the "Americans" exceed the norms for their ages, and this may indicate that the sample of North European descendents studied is somewhat "above average" for their own group.

What, in conclusion, is the inference to be drawn from the present evidence? For the children of the racial stocks here investigated, a conservative answer must be that so far as this sampling goes, very wide differences exist. How much the difference is due to biological heredity and how much to environment is harder to answer. Extensive surveys have shown that mental abilities are, in large measure, inherited. One is justified from the scientific support of this point to conclude that the large part of the differences revealed in these measures *are* innate and hence reflect but the mental abilities of the family stocks and classes of the particular races from which they came.[62] In brief, the evidence presented seems convincing that marked mental differences do exist between the type of immigrant stock from South Europe that comes to this country and the older American stock. No generalizations are attempted for the Italians, Portuguese or Spanish-Mexicans as a whole.

C. Racial Hybridization and Americanization.

There is frankly no such thing as racial assimilation. There is only racial amalgamation (22). Assimilation implies that a parent stock may absorb another and make the second over to be like it. This is impossible. There is always hybridization. The resultant of a mixture cannot rise higher, biologically speaking,

[60] Cf: *supra* Ch. III, Pts. I and II.

[61] Cf: *supra* 84f. Had the writer omitted the two "best schools" in San Jose from his "American" group the differences would not have been so marked.

[62] Emotional and temperamental differences were not investigated. Science still lacks good measures for these, and must resort to composite judgments of persons if these differences are to be studied. The future will likely show us that emotional characteristics are fundamental drives to intellectual achievement, and divergences in races may be partially, at least, due to differences in emotional features. Cf: 79, p. 239-40, for comment on racial differences based really on these "non-intellectual" traits.

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than the source of the lower of the strains going into the new product.

From the biological viewpoint the mixture of European stocks as *races* in the technical sense is not a problem in this discussion. The North European and South European are racially near enough together to inter-marry with no serious break-down of the effects of previous inbreeding (35, ch. 12). It is rather the matter of selecting the best of both stocks. And it must not be forgotten that the "Older Immigration" also brought its mental defectives and subnormals. But for today it is a question of relative numbers and of average variability of intelligence. The whole situation is well put by Conklin (22, p. 351):

> It is not the mixture of the blood of different European races in this country that should cause concern, but rather the amalgamation of superior hereditary types with those of inferior physical, mental and social traits, from whatever country or race they may come.

Our American policy of immigration should revolve around an appreciation of the significance of mental differences rather than economic. Two new points of view on the part of the public opinion and the legislative bodies of this country must come into being. The first concerns a changed attitude from quantity of immigration to quality, the second, the control of immigration in the interest of real national welfare and not immediate and partisan (*e. g.,* economic) exploitation. Restriction of immigration should go on in terms of capacity of the immigrants and not of their cheapness as laborers. A set of well-worked out physical and psychological tests with norms could be devised for a relatively slight cost which would be of untold benefit to the country's future in the way of preventing any further flooding of our country with low-grade materials on which to build a coming nation. We have enough liability in poor stock already without enhancing it.

The problem of Americanization is related to this entire question. While the cultural heritages from European sources must continue to be welcome to us, yes, even those brought over by the humble immigrants, our own cultural and civic values must be couched in such terms that they will connect with the Old World traits (79). Furthermore, in racial temperament the more removed European stocks may have great contribution to make to our own Nordic strains.

On the other hand, if such masses continue to come from the poorer biological stocks in Europe, as is apparently the case (5, 34)

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with much of our "Newer Immigration," the problem of cultural values may be immersed in lower standards of living, mental defectiveness and a general lowered toning of the best in our national life. The picture is not hopeless unless we leave it so. But our traditional social *laissez faireism* may result in serious consequences. But on the leaders and instigators of public conscience rest the duties of making evident the problem and pointing, after due consideration, to its solution. Our present muddling, however, will end in a social morass unless we do quickly make strides to free our minds of the popular and pleasing reasoning which is so dangerous."

[63] The writer refers to the existence in our country of certain false premises of equality of ability and a whole host of credos which are nothing but traditional rationalizations. The *real* reasons we avoid and enjoy the *good* reasons, since they are so much more pleasant to believe in. The latter furnish a basis for holding to the past; only the former provide a method of dealing sensibly with the future.

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CHAPTER V. THEORETICAL IMPLICATIONS: RACE DIFFERENCES AND CULTURAL PROGRESS

The present-day discussion of the problems of racial differences and cultural progress make a short digression into the implications of the problem not out of place. This chapter will discuss theories of race differences and culture and an attempted interpretation of the problem.

A. Theories of Race Differences and Culture.

One discussion of racial mental differences which had great popularity in its day is typified in the writing of Gobineau (44), who held to the absolute inequality of races and believed the cultural progress of the world was doomed through the incursions of the inferior races upon the superior, ending in the final inundation of the latter by the former. He looked for the total destruction of the entire human race in ten to fourteen thousand years. After Gobineau followed a long train of writers who maintained that the world's population was segregatable into two or three races, with the white race at the top and the colored races at the bottom. Gobineau's theories may be truly termed pre-scientific.

The advancement of modern biology, anthropology and sociology has led to two trends in the discussion of these matters. The one point of view may be called, for want of a better term, the socio-anthropological, the other the psycho-biological.

i. The Socio-anthropological Standpoint. Ward (127, 128), Boas (9), Lowie (65, 66), Thomas (115, 116), and Park (79) may be taken as representative of the American adherents to this point of view. Ward was particularly opposed to the findings of Galton, and just before his death he made a last masterly thrust at the problem of race and heredity versus environment and culture (128). In this paper he maintained the view that so far as native ability is concerned, barring about one per cent of defectives and one per cent of exceptional geniuses, all mankind is equal and hence the important matter for cultural progress is, and always has been, environment and opportunity.

Boas is convinced that the mental differences between races are small, and that the overlapping in abilities is so great as to make any comment on extensive racial differences unwarranted.

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He places his emphasis on cultural dissemination and the factor of time in cultural progress. Lowie, while possibly admitting some slight differences in the average mentality of races, sees in cultural borrowing the greatest factor in social advancement.

Thomas and Park, while admitting the place of the exceptional individual in invention and the development of techniques, are interested more particularly in the social attitudes and cultural products of races. The "run of attention" plus cultural opportunity are the important features. At least so far as the negro as compared with the white race is concerned they do not believe any very marked differences in mental abilities exist, nor would they likely admit much difference in native endowment between the present-day European peasants and primitive man, or between the social levels of modern society generally. Cultural opportunities rather than innate differences make for the principal differences in the levels of society or in race groups.[84]

ii. The Psycho-biological Point of View. The writings of Galton (42), Woodworth (137), Thorndike (120), and of the eugenists like Davenport (26) illustrate this viewpoint. Pearson (78) and his pupils represent the present followers of Galton in Great Britain.

Galton's writings on mental differences are well-known. While not believing in any such rigid differences between groups as did Gobineau, he maintained that the average intelligence of races differed. Moreover, very important was the fact that the variability of races differed, hence those groups that possessed the wider dispersion had the advantage in progress over another race of even like average capacity but of less variability.

Woodworth has pointed out that so far as the sensory-motor processes are involved the various races he examined seem to be much the same. He holds that what differences there are lie in the field of the higher thought processes, but that these differ only in relative terms and in varying degrees of magnitude. Thorndike contends that while differences in average intelligence may exist between races, the amount of variability within any group far out-reaches the differences in the averages between races as such.

[84] Spiller (100), who represents these views abroad, writes: "An impartial investigator would be inclined to look upon the various important peoples of the world as, to all intents and purposes, essentially equals in intellect, enterprise, morality, and physique." Ratzel (87, p. 18-19) holds that the differences in races are due to "ethnography and civilization" and that "the study of comparative ethnology in recent years has tended to diminish the weight of traditionally accepted views of anthropologists as to race distinctions." Yet the facts of individual differences and overlapping can not be ignored.

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Where differences appear he too believes them to be in the field of the "higher" mental traits. Culture, for Thorndike, must be the output of the superior individuals in a particular group. He further makes the point that not only variability and central tendency are important in racial advancement, but also the sheer size of any given racial group, because large numbers increase markedly the chances for the production of gifted persons.

These two standpoints have led at times to considerable controversy in scientific literature. The extremists in the first school can see little or nothing in racial differences, some of them even ignore individual differences within races. The more moderate of them have developed their technique for the study of culture and have usually held that by and large the cultural forces outweigh any other. They assume, then, that environment is much the most important force in human progress. The more extreme of the eugenists, on the other side, have denied any place to environmental forces and have written all human ills and wells in terms of hereditary factors,—physical, mental and moral. (Cf: 123, ch. 17.) The psychologists, however, along with the more conservative biologists, have had a place for the environmental aspects of progress, but have emphasized the mental and physical differences as arising principally in heredity. On the whole, however, they too have ignored the factors of cultural differences.

B. An Interpretation of Racial Differences and Culture.

Whatever controversy has occurred between the two points of view outlined above has arisen largely from a misconception of the relation of one set of factors in the situation to the other. One may for brevity say that there are two kinds of heredity: *Biological,* which carries the inherent capacities of the individuals from one generation to another (the laws of this inheritance are modifiable only in terms of the biological factors); *Sociological,* which is synonymous with the cultural products of the past that are carried from one generation to the next in education, techniques of food-getting, arts and science, and social organizations generally. The problem, then, of this chapter becomes one of harmonizing these two forces into a consistent scheme. The writer will put his interpretation forward under three phases: (i) the facts of mental endowment in races and individuals; (ii) the cultural or social heredity of groups; (iii) the present nexus between mental endowment and culture.

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1. The Distribution of Mental Abilities. The studies directed toward facts about the mental abilities of the negro, the Oriental, the North American Indian, the immigrant groups in the United States and the results of the writer's own investigation all go to show that the abilities measured reveal differences both in the central tendencies and in the dispersion. As Thorndike points out, however (120, p. 234):

> There is much overlapping and the differences in original nature within the same race are, except in extreme cases, many times as great as the differences between races as wholes.

We cannot speak of superior or inferior races. We must think of them as groups all possessing individuals running from what we term feeble-minded to gifted if not geniuses. But the *relative percentages* of these and the variability around a given average may differ considerably. Moreover, facts of size of a given population, of inbreeding and outbreeding and especially of selective breeding among the better strains are important.

It follows from this that, on the whole, the chief matter of mental differences is that of relative amounts of differences within the races themselves, and second, the possible effects of inter-mixture with other races of lower central tendency and less dispersion depends upon whether the superiors of both undergo miscegenation, or the mass of the inferiors swamps out the best of the higher average group.

In terms of race progress the existence of individuals of above average or superior ability is the first essential to inventions and creations that make for advancement. The capacity for conceptual thinking is the core to improvement in the arts and sciences. Now there is considerable evidence that superiority of general native intelligence is measured in terms of the capacity for the "long-shot" use of free imagery, abstract symbols, seeing of remote meanings and relations in natural and social phenomena. In fact there seem to be actual levels of development of thinking ability which are uninfluenced by the state of environment (46, 102). True enough, "accident" and attitude play a role, but it is idle to deny the tremendously important place that superior individuals have served in mechanical inventions, in social inventions,—institutions, religious, economic and political; in artistic creation,—myth, literature, the fine arts; and lastly, in science, objective methodology and standpoint. In brief it may be stated that progress rests firmly upon individual mental endowment.

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ii. The Distribution and Importance of Culture. The particular level of culture to which a group has attained may be due either to the progress of the group itself, which means a peculiar blending of superior individuals and crises[66] in development or to cultural borrowing. Just as at present in the study of mental differences, it is often perplexing to attempt to segregate the factors of heredity from those of environment, so in ethnology the amount of borrowing as against the amount of originality in a given culture is extremely hard to determine. Moreover, there is scarcely a case extant of pure borrowing. The recipients of outside cultural favors usually alter the details, adding or subtracting therefrom to suit their own needs. Sometimes they improve considerably upon the device, be it social or mechanical. The extent of the improvements again will depend upon the existence of individuals who are able to see in the borrowed products cues to further extension of their usefulness. Thus has technique and attitude toward improving inventions and creations arisen, and the progress of a group may be said to depend upon the presence of above average ability in the group as well as to the mere fact of borrowing.

Therefore, social heredity of a given race of either superior or inferior average ability may include a great deal that is exotic in origin. Recent researches have shown that the Greeks, for example, who stand without peers both in intelligence and cultural contributions of their own, were far greater debtors to more ancient cultures than older scholars ever dreamed. On the other hand isolated races like the Central and South American Indians developed interesting cultures of their own. Their art and technique was as distinctive as it was original. The Melanesians and Polynesians also developed independent cultural areas. The Japanese, a people of apparently high average intelligence, have long been extensive borrowers, usually improving, adapting and using these contributions for their own benefit.

In science and mechanical technique the processes are very noticeable. Man in his effort to control and combat natural forces around him has been both inventor and borrower. The state of the technique and the social attitude of the group must go together to produce advancement. Take the case of modern science. Its present freedom and importance are young. For centuries it lay

[66] Cf: Thomas (115) on crises. The term "crisis" is used in the broad sense of any critical situation demanding attention and solution. They are the new features of environment to which the individual adjusts, and his measure of success is largely in terms of his native capacity operating through the cultural tools that make up the contents of "mind."

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dormant and undeveloped under the weighty hand of creed and superstition. So in primitive groups, the power of taboo and ritual in preventing the curiosity of the individual from penetrating the mysteries of natural or social phenomena were great deterrents to the development of objective techniques and attitudes. At best the able individual's mental development acquired the content laid down by the group attitudes. He put his capacities to work where the group permitted. As some one has said, although a Newton could hardly contribute a system of physics if born a Hottentot, he nevertheless would have been the most gifted mentality in his group and might have led his people to success in warfare or other progress which their cultural background made possible. *The particular line of attention which the superior persons in a group adopt is determined by the state of the social heredity.* Even to this day investigation into social behavior and the human mind has to combat popular superstition and ignorance. It is simply the modern chapter of folkways and mores operating against objective science.

Without going to great length the writer does wish to emphasize the place that convention, tradition, mores and subjective social controls have played in the matter of human progress. The history of science and of civilization is replete with instances of the blocking of progress by the social attitudes of the group backed by the authority of priesthood, cult and caste.

iii. The Present Use of Heredity—Mental and Social. This is the important feature of the entire question. Present-day inquiries about racial progress, racial mixture, democracy and the future of science hinge upon it.

One must not forget the cumulative effect of modern progress, that with every advance, in any direction,—art, science or social invention,—there goes additional stimulation to the rising minds to attack and prolong the process. Herein lies a curious thing in modern developments and possibly one noteworthy cue to its solution. We have the "set" or attitude of progression much more consciously expressed than ever before in history. Never previously have groups so large as the European, American and Far Eastern world moved almost in unison in terms of cultural ambition. This attitude, this desire to "get on" ramifies every avenue in life. It may be that just now our interests are pointed toward economic exploitation especially; but whether narrowly economic or more truly "social," the attitude is everywhere about us. It is

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inescapable, and today among all classes practically, and among the foremost nations, the one dishonor is not to be "going somewhere."

Modern means of communication have enhanced tremendously the possibilities of inter-stimulation among minds. We consciously create "crises" and stimulation in our preparation for life that simulate those in actual later accomplishment. Coupled with these facts is the present expansion of numbers of the population, which as we have seen increases the probabilities for the production of gifted individuals. It is not known whether the relative number of gifted individuals and particularly geniuses is greater or less today than in Plato's and Aristotle's time. Galton thought much less. It does not, perhaps, matter. The fact of numbers, modern science and communication in cultures probably offsets the differences imagined by Galton if they exist. It does concern us, does it not, whether the average intelligence of our race is decreasing and the range of variability growing narrower. Are we headed for a definite, unpreventable regression to the mediocre? A hypothetical case will put the problem before us:

Suppose that all class A chemists, men of superior and above average native ability, should be wiped out at one stroke; the class B men would still be capable of continuing important research after some fashion. With the present technique at hand, worthy discoveries and valuable applications would still be made. But does anyone doubt that ultimately chemical progress would be slowed down so as to affect all scientific progress related to it, as well as its own, unless new men of class A ability came into the field?

Another point: Cultural borrowing is going on apace now more than ever. Little does the man in the street realize the place that superior abilities have had in making his comforts and conveniences, and enlarging his grip on the universe. However, *the capacity to use and derive benefit from any given invention or idea is a vastly different thing from the initiation of the idea or the consummation of the invention.* For instance, a moron may be able to read a thermometer with sufficient intelligence to enable him to do simple tasks such as opening or closing the windows of an office or school building. It is a different matter, first, to have the capacity for the education which enables one to master the laws of physics and chemistry relating to the expansion of mercury in the presence of heat. Moreover, to be the first individual to work out the laws of the expansion of mercury is even more unusual

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both in terms of opportunity and native capacity well trained. Again a man of less than average intelligence may successfully manipulate a truck over the ordinary traffic routes of a city, but may not be able to repair the engine of the truck in case of trouble. Neither may the repairman be able to think up new devices for gas engines or more remotely to figure out the relation between the expansion of certain volatile substances and the application of the phenomenon of gas expansion to motive power.

Hence, though modern society has well begun to eliminate the most serious handicaps to progress in the way of taboo and creed on the one hand, and has under science developed communication and objective attitude, the essential fact remains that the continued initiation of progress depends upon the use of and gradual accretion to this social heredity by those of above average ability, who breeding their kind in a selective fashion will lay the biological chances in such a way as to produce the very gifted individuals in each generation who will lead this progress most significantly forward. Any racial mixture that will hinder this, or affect it negatively, by so much is destructive of the best possibilities of the best strains of ability wherever found.

iv. Summary. In conclusion it may be re-stated that the intelligence of groups and races is important, and any change in the percentage of high average intelligence and a wide variability giving superior members in one group or race through mixture with less intelligent (on the average) and less variable stocks will slow down the cultural advancement possible for the given group.

Second the differences in cultural opportunities in various classes of any population, or races, are rapidly disappearing through the application of modern science to the spread of culture. The most consequential aspect of the culture is the degree of scientific techinque and the state of the arts developed in connection with the social attitudes toward the use of these possessions.

Third, the future lies with the preservation of the best average intelligence in the entire population possible, coupled with the widest varibility toward the superior deviates.

Finally, an ethical implication of all this must not be overlooked. It is precisely here that the features of culture and the attitudes or social values are of primary importance. Whether the progress of Western civilization is to go forward in terms of a more just and ethical social organization, giving place to well-integrated

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personality and high culture, or whether it is to go to the extreme in machine technique and increasing routinized industrialism without any general social benefits to the masses, all the while breeding nationalistic jealousies that lead to war and inventions of ever newer and more ghastly methods of warfare, depends upon the education and the social ethics which the intellectual leaders of society acquire. Our modern world must accept the best in culture, no matter its exotic origin; we must continue our emphasis upon the dispelling of prejudices. And before all else equal opportunities must be accorded every child and adult for the accomplishment of the best his capacities allow. It is barely possible, to say the least, that the integration of personality which this implies may revolve around considerably different values than those now insisted upon.

In the groups whose mentality has been studied, the range of ability in all runs from high to low. Although some groups decidedly outstripped others on the average and in variability it does not follow that the less fortunate groups are not capable of the use of culture or that their groups do not contain persons who are capable of superior attainment. Society must provide for the utilization of the best abilities from all races and classes as well as the use of the corresponding cultures. Therefore, the problem of racial difference especially so far as it touches the European groups, and presumably the Orientals too, is not an "all or none" principle, but one of relativity and proportion. Let our segregation be along the lines of ability, never of race as such, and with the proper opportunities for all, especially for those capable of leadership, the future of culture itself is secured.

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CHAPTER VI. GENERAL SUMMARY AND CONCLUSIONS

A. The Purpose of This Study was: (1) to investigate the general intelligence of children of certain immigrant stocks to discover, (a) whether the alleged language handicap in their school progress existed in fact or not; or (b) whether the difficulty with their school attainment were due to deeper lying causes in their native mental endowment; (2) at the same time to secure facts on the mental differences in the racial stocks studied. The assumption was made that general intelligence is measureable, and that it is to a large extent inherited, and is not greatly altered by the adventitious character of a particular environment; that is to say, not altered in form and potentiality, only in content.

B. The Methods of Approach consisted in: (1) the use of several outside measures of ability of the groups in question: (a) teachers' estimates of (i) general intelligence and (ii) school work; (b) grade location; (c) parents' occupational levels: (2) the giving of two types of psychological tests of general intelligence: (a) a verbal test, army alpha, and (b) a non-verbal test, army beta.

It is believed that the comparison of the results of these two tests, first through their measures of averages, dispersion and overlapping, and second, by means of correlation methods would throw light on the question not only of the native intelligence of the children tested but also answer specifically the question of "language handicap" versus native endowment as the most important cause of school retardation. The tests would also serve to throw light on the query concerning mental differences in these racial groups.

(3) Rather than selection of children by grade, a common chronological age of twelve years was taken, in choosing the sample.

(4) The anthropological backgrounds of the racial stocks were briefly reviewed for purposes of partial interpretation.

C. The Data as collected and subjected to statistical treatment disclosed the following facts:

(1) Extensive retardation of the Latins as compared to the Americans.

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(2) The teachers' estimates of school work indicated that in their judgment the Latins do considerably poorer, for their grades, than the non-Latins. The latter exceed the former, in terms of mean rating, by an amount equal to nearly one-seventh of the range of the scale upon which the ratings were made.

(3) The teachers' estimates of general intelligence showed that the non-Latin C. T. exceeds that of the Latins also by one-seventh of the range of the rating-scale. Both ratings of school work and of intelligence indicate that the Americans are more variable, in the judgment of their teachers, than the Latins. None of the latter reach the classification "Very Superior" on either scale: school work or intelligence, while the percentage of Latins labeled "Very Inferior" greatly exceeds that of the non-Latins in this category, for either scale.

(4) Grade location indicated that on the average the Americans excel the Latins by nearly two grades. If the present grading is anywhere nearly just and 100 I. Q. can be taken as the average for the Americans in terms of present grade status, the Latins are five-sixths of this amount and might be represented by an average I. Q. of 83.

(5) The economic status of the parents of the children shows that there is a rough relation between economic class and the mean intelligence of the children of these classes. While there are bright, median and dull intelligence in each classification, all abilities from high to low exist in each class, but in varying degrees of frequency.

(6) The psychological tests results show:

a. That very wide differences exist both in C. T. and in dispersion between the Americans on the one hand and the Latins on the other. The overlapping, corrected in terms of the reliability of the tests disclosed the following:

i. For the Alpha, the upper 50 per cent of the Latins scarcely exceeded the lower quartile of the Americans, while only from 5 to 7 per cent of the Latins exceed the median of the Americans, and but 1 to 2 per cent exceed the upper quartile of the latter. There is good evidence that the alpha is the better of the two tests in terms of its differentiating value, but if this be not admitted, the beta results, themselves, show very striking facts of overlapping. Only from 11 to 16 per cent of the Latins exceed the median of the Americans in beta, from 25 to 30 per cent exceed the lower quartile of the latter, and but 4 to 7 per cent the upper quartile. Since

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the beta is clearly inadequate to differentiate among the superior, average and low average in the American groups, were the beta more difficult the results would have been more nearly like those in alpha. As might be expected the alpha and beta combined together in one scale give an overlapping somewhat between the two extremes of alpha and beta alone.

This evidence constitutes proof of the decided inferiority, on the average, of the Latin stocks to the American group studied. It likewise has its relation to the matter of racial differences in mentality.

b. The correlational materials present further answer to the problems of the study:

i. The verbal test—alpha, proves a better measure of the ability of the Latin groups than the beta, which shows:

ii. That the alleged language handicap does not exist to anything like the extent usually supposed. While in the case of the Spanish-Mexicans the beta seemed to be about as adequate for diagnosis as alpha, it was not markedly better, and the best evidence from an analysis of the test results would indicate that had another verbal test more commensurate with the general level of intelligence of this group been employed it would have served better to measure educability and for use in grading than a non-verbal.

It is not denied that language difficulties play no part whatever in the problem of the immigrant's child, but it is a minimal matter compared to that of native endowment. The correlation of alpha against grade location with the Italian 12 year-olds who were born in Italy was five points higher (r .76) than the beta against grade (r .71). While the beta compared more favorably with alpha in this case than in the general sample, it is noteworthy that the alpha is still better as measured by the best single outside criterion of educability (and thus of intelligence) that we have.

Therefore, the conclusion is put forth than the language handicap of the children in the public schools is not the cause of the difficulty with the school materials. Retardation is in terms of native capacity.

iii. The results of the tests, both alpha and beta, when correlated with the occupational status of the parents, show that some slight correlation exists between the mental standing of the pupils in these tests and the economic success of the parents as measured by the occupational classifications used. The correlations, how-

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ever, are not high enough to warrant conclusions concerning the probability of a given intelligence falling in a particular occupational group.

D. The significance of these findings for the educational-administrative program include briefly the following principles:

(1) Alteration in the educational point of view recognizing the fundamental need for differential education for the various levels of capacity in school population. The more specific changes will involve:

a. Alteration in administrative and supervisional organization looking to:

i. A plan for re-grading school populations in terms of mental age rather than chronological.

ii. Grade organization providing for at least three levels of school work—for the superior, for the average and for the backward. In addition, increased provision will have to be made for the feeble-minded, of whom such populations contain considerable numbers.

iii. The wide, but proper use of pedagogical tests and measurements for periodical checking up on the efficacy of the educational product.

iv. These last three important points necessitate the establishment of a research bureau, with a director trained in administering and interpreting psychological and pedagogical tests for school uses.

b. Changes in the curriculum will be necessary.

i. The principles of curriculum making must be clearly understood, i.e., the objectives of education must be defined.

ii. Differential materials and methods must be made a part of the course of study to fit the levels of capacity of the pupils, and their future requirements in adult society.

c. Teaching methods need serious revamping. The project method of education will find an excellent place in this scheme. Contacts with the outside industries and occupations will need to be made.

d. If immigration continues to give the public schools newcomers from abroad, special provision must be made to care for the immediately arrived foreign-born children and adults in the matter of acquainting them with the tools of English. When they have acquired sufficient English they may be shifted to such grades in the regular school as their capacities demand.

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e. The public conscience and public co-operation must be enlisted to make this school policy go. Neighborhoods must be revived and the school must become the center of the social life of the families who group themselves around it.

E. The findings of the thesis are also important for the problem of immigration and race mixture. It is not maintained here that the intelligence uncovered in these groups is typical of the entire racial groups from which the sample sprang, but it is held likely that it represents very well the common run of immigrants from these countries who do actually settle in the United States. Other studies corroborate the findings of this investigation and lend credence to this belief. Therefore, the importance of the matter for immigration and national future.

While the European races are probably all of near kind, the South Europeans have considerable negroid strains in the masses of the people and this fact may, in part, account for the divergence from the intelligence of the North Europeans' descendents. On the whole, however, the theoretical as well as practical problem of the European in this country is one of relative degree of native intelligence in the groups as compared to that of the older American stock. And the question of racial differences and the country's welfare is one of such public policy as will give the future the best of all the strains present and prevent such amalgamation of inferior with average and superior as will lessen the average intelligence of the nation and narrow the dispersion of abilities toward the production of gifted individuals.

Certain theoretical features of race differences and cultural progress were made. These are necessary implications for the wider meaning of this investigation.

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